

**A Public-Private Partnership Model for Higher Education  
Infrastructure**

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## **ABSTRACT**

The Nigerian Higher Education (HE) system has faced several challenges, which have led to the use of Public Private Partnerships (PPPs) to improve the provision of infrastructure and enhance service delivery. However, private sector participation in the delivery of HE infrastructure lags behind other sectors to date.

This study explores how private sector participation in the provision of social infrastructure in the Nigeria HE infrastructure sector can be improved. To this end, a viable PPP Model suitable for the procurement of social infrastructure in the HE infrastructure sector is developed.

A systematic literature review was carried out to investigate HE infrastructure needs in Nigeria public higher education institutions (PHEIs), the extent to which the private sector has partnered with the government in HE infrastructure development, and the problems associated with PPP in HE Infrastructure development. Also, analysis of PPP processes applied to HE infrastructure and services in three developed countries (Canada, the UK, and the USA) was carried out to identify opportunities and attributes applicable to the process of proposing solutions to the identified problems.

To gain further understanding of the identified problems, an exploratory study was conducted by interviewing some stakeholders, also, to understand the problems as they affect individual projects, case studies of three completed PPP projects in the HE infrastructure sector were conducted through semi-structured interviews, and questionnaires. Furthermore, Collaborative Governance Theory (CGT) was identified as an appropriate theory for the study and used as a lens to interpret the findings.

The proposed Model was then developed based on the findings of the literature review, the exploratory survey, the case studies, and the study concludes by identifying strategies that can help PPP initiative in Nigeria HE infrastructure sector take a more practical and dynamic approach towards its processes. Strategies such as a good and strict implementation of PPP project governance system, proper stakeholders' engagement/management, determination of appropriate payment mechanism, the introduction of Special Purpose Vehicle (SPV) are suggested to harness private sector participation in social infrastructure development in the HE infrastructure sector.

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but of God who shows mercy’ Romans 9:16 (NKJV)*

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# DECLARATION STATEMENT

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## **LIST OF PUBLICATIONS**

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# Chapter 1: INTRODUCTION AND BACKGROUND OF THE RESEARCH

## 1.1 Introduction

This chapter provides a general overview of the research, it states the research problems and outlines the aim, objectives, and the justification of the research study. In addition, the structure of the entire research process is presented together with all the stages of the research and the research activities conducted at each of the stages.

## 1.2 Background of the Study

Many researchers have expressed the view that knowledge is a strategic driver of growth and development (Ogunyinka, 2013); therefore countries with higher skill levels are better equipped to face new challenges and master technological innovations (Ogunyinka, 2013). Moreover, education is broadly believed to be critical for any nation's economic, political, and social development and to help people escape from poverty and participate fully in the society and in the market place (Uche et al., 2011). These are just a few of the reasons why governments around the world assume the responsibility of providing and financing Education, especially Higher Education.

Because skills for the knowledge economy are built at the Tertiary Education level, improving the Tertiary Education system should be high on SSA's development agenda. Thus, African Tertiary institutions and policymakers need to ensure that the workforce acquires the skills to compete, innovate (Uche et al., 2011, Ogunyinka, 2013), and respond to complex social, environmental, and economic situations (Ogunyinka, 2013).

Nigeria is said to have the largest University system, in the entire Sub-Saharan region of Africa, but enrolment is lower when compared with that in South Africa. Although Nigerian Universities have grown dramatically in size, however, they are not able to act as the engines of growth and development, due to inadequate funding (Asiyai, 2013). Bamiro (2012) describes Nigeria Higher Education sector as 'a sector locked in an iron triangle defined by three vectors (Access, Quality, and Cost).

Higher Education Institutions in Nigeria comprises of a range of institutions which can be grouped into university and non-university sectors (Oseni, 2012). The non-university sector comprises of Polytechnics, Institutes of Technology, Colleges of Education, and Professional Institutions (Oseni, 2012), all of which operate under the same body, the Federal Ministry of Education. The table below shows the number of federal, state and private higher institutions in Nigeria based on the information gathered from the National University Commission (NUC) and National Board for Technical Education (NBTE).

Table 1.1: Higher institutions in Nigeria

	Universities	Polytechnics	Colleges of Education	Colleges of Agriculture	Colleges of Health Technology
Federal	41	28	22	24	38
State	47	43	47		
Private	74	50	18		
Total	162	121	87	24	38

Source: *National University Commission (NUC) and National Board for Technical Education (NBTE).*

It is important to note that the infrastructure and physical environment of an institution provide the appropriate form and atmosphere for teaching and learning (Olander, 2007). Infrastructure development in the HE infrastructure sector is complex and cost-intensive (Uche et al., 2011). This includes the provision of office buildings, classrooms, students' hostels, staff quarters, workshops, laboratories, information and communications technology (ICT) centres, libraries and health centres, as well as sports facilities. It is also worth pointing out that Nigeria's public HE system has over the years faced several challenges, ranging from inadequate funding to mismanagement. Public higher education institutions (PHEIs) in Nigeria are currently faced with inadequate infrastructure both in quality and quantity, and to say they are in a state of disrepair is an understatement (Olander, 2007). Most available facilities are dilapidated, not clean, safe, or conducive for studies because they are inadequately maintained (Faniran and Akintato, 2012) and they are therefore below global standards. In most cases, lecture rooms, and student accommodation are grossly adequate, and this is evidenced by overcrowding and squatter settlements abound within and outside institutions of higher learning in the country (Odebiyi and Aina, 1999, Uche et al., 2011). These may explain some of the reasons why the performance of both staff and students in Nigeria PHEIs of learning are sometimes

below expectation (Olander, 2007). Figures 1:1 to 1:6 illustrate the appalling state of infrastructures in some Nigeria PHEIs.



Figure 1.1: Dilapidated Chemistry Laboratory at the University of Maiduguri, Nigeria  
*Source: Committee on Needs Assessment of Nigerian Universities (2012)*



Figure 1.2: Students queuing for pipe borne water at the Federal University of Technology Owerri, Nigeria.  
*Source: Committee on Needs Assessment of Nigerian Universities (2012)*





Figure 1.3: Students' Male Hostel in a Nigerian Public Higher Institution (Malabo Republic, University of Calabar).

Source: *Committee on Needs Assessment of Nigerian Universities (2012)*



Figure 1.4: Architectural Studio at Ahmadu Bello University Zaria, Nigeria

Source: *Committee on Needs Assessment of Nigerian Universities (2012)*



Figure 1.5: An improvised facility, where lectures take place simultaneously at the Federal University of Technology Owerri.

*Source: Committee on Needs Assessment of Nigerian Universities (2012)*



Figure 1.6: Students attending lecture through the window at The University of Maiduguri

*Source: Committee on Needs Assessment of Nigerian Universities (2012)*

Studies show that Nigeria does not have the capacity to offer admission to all qualified applicants every year, because of the lack of infrastructure and other necessary facilities that are required. In 2016, 1.7 million students passed the university entrance examinations, the system could absorb only 750,000 students, which stands at a mere 40%. This has huge foreign exchange implications for the country, as Nigeria spends

billions of Dollars every year on educating its population, money that can be used to rehabilitate and replicate educational infrastructure and services to areas that lack amenities. The seriousness of this problem, if not contained, can be seen in the National Population Commission 2018 that 50% of 182 Million Nigerians is below the age of 30 years and the population is growing exponentially. Nigeria is expected to have a larger population than the United States of America by the year 2050 (United Nations, 2013). United Nations Population Funds also reported that Nigeria is currently the sixth most populated nation in the world. Consequently, there is the need to develop the nation's HE infrastructure sector to accommodate growing demand. Currently, the demand for education in Nigeria outweighs the supply (Faniran and Akintato, 2012). National University Commission (2012) estimated the Nigerian University access rate to be 10% in 1996/1997, less than 20% in 1998/1999, and 10% in 2000/2001; this is an indication that only 17.2 % of candidates can enrol (NUC, 2012).

The quality of Higher Education of a nation strongly depends on the quality of the resources, both human and material, as well as the infrastructures put in place (Asiyai, 2013). This cannot be overemphasised; as low quality of education affects the performance of the workforce. There are different variables affecting the quality of Higher Education in Nigeria: according to Asiyai (2013) these include inadequate funding, inadequate numbers of teaching staff, poor quality of teaching staff, poor policy implementation, lack of resources, lack of information communication technology facilities, frequent labour disputes and closure of institutions, lack of vibrant staff development programmes, the brain drain and finally, poor leadership. It is worth noting that almost all these challenges exist because of inadequate funding.

Public sector Higher Education Institutions in Nigeria are funded by the government (Oseni, 2012). This is because Nigeria government considers the provision of education as the responsibility of the government (Oseni, 2012) HE funding involves both Federal and State governments and is made available through budgetary allocations (Oseni, 2012). As a result of the increase in demand for Education, Nigeria like most countries in the world is no longer able to meet the growing needs, and according to the World Bank (2010), the financing of higher education in Africa remains a major challenge.

The Nigerian Government, like its counterparts all over the world, has always been the major financier of its tertiary institutions. However, government funding is no longer able to meet the required funds needed by these institutions, making it difficult for the



government to provide adequate infrastructure for higher institutions just as it is in the rest of the world. Asiyai (2013) claims that the most critical amongst all the challenges faced by Higher Education in Nigeria is inadequate funding. However, even when the funds are made available to the institutions, they are not properly managed. If there was adequate finance, and the available funds are properly managed, suitable infrastructures would be provided, giving access to qualified students, as well as teaching and learning being carried out in an appropriate environment and thereby increasing the output of both staff and students. Table 1.1 shows the capital expenditure and Nigeria's total budget on education between the years 2010 and 2018. The table clearly shows that the percentage of the budget allocated to education is nowhere near World Bank recommendation of 26% for developing countries.

Table 1.2: Federal Government Capital Expenditure on Education (NGN Million) for the year 2010–2018

<b>Year</b>	<b>Capital Expenditure on Education (NGN)</b>	<b>Total Allocation for Education (NGN)</b>	<b>Overall Total Budget of the Country (NGN)</b>	<b>Total % of the budget allocated to Education</b>
2010	53,667,933,553	293,427,655,563	4,079,654,724,257	7.19
2011	35,088,896,911	393,810,171,775	4,226,191,559,259	9.32
2012	55,056,589,805	468,385,037,983	4,749,101,000,000	9.86
2013	60,140,591,038	499,761,707,888	4,924,604,000,000	10.15
2014	50,781,035,231	494,783,130,268	4,695,190,000,000	10.54
2015	23,520,000,000	484,263,784,654	4,493,363,957,158	10.78
2016	35,433,487,466	480,278,214,689	6,060,677,358,227	7.92
2017	56,720,969,147	550,597,184,148	7,441,175,486,758	7.40
2018	61,725,553,540	605,795,857,907	8,612,236,953,214	7.04

*Source: Budget Office of the Federation.*

There are currently four major modes of funding higher education institutions in Nigeria: government allocations, grants, private sector contributions, and commercial ventures. In 1993, the Education Tax Act No7 was promulgated as Education Tax Fund (ETF), the Act imposed a 2% tax on all assessable profits of all companies in Nigeria to fund the restoration of the decaying infrastructures of the public institutions at the Federal, State, and Local levels (TETFund, 2019). ETF was established by the government to aid the execution of projects in order to improve the quality of Education in the Country; (Olander, 2007).

In 2011, the Education Tax Act No 7 of 1993 was repealed and replaced with Tertiary Education Trust Fund Act 2011 in which Education Trust Fund was renamed Tertiary Education Trust Fund (TETFund, 2019). Tertiary Education Trust Fund (TETFund) also works by imposing 2% Education Tax on assessable profit of all registered companies in the country; the fund then offers financial assistance to all public higher education institutions in the country (Olander, 2007).

Similarly, as a result of the tight annual budget, the government specified that Nigeria public universities should generate 10% of their budget through internally generated revenue (IGR) while the government provides the remaining 90% (Olander, 2007). The Nigerian government also directed all Federal Universities to explore ways of generating revenues in order to reduce the rate at which they depend on the government for funding (Olander, 2007).

Notwithstanding the introduction of the TETFund and the introduction of 10% IGR and other ways of generating funds by individual institutions, most public institutions are still unable to bring up their infrastructures to the acceptable standard. As a result of the low standard of available infrastructures, staff and students of tertiary institutions of learning are being robbed of appropriate atmosphere for teaching and learning (Olander, 2007). Thus, students can no longer carry out basic academic functions: either the lecture rooms are over-crowded, or lectures are carried out in improvised facilities as evidenced by Figure 1.5, or libraries are ill-equipped. A combination of these problems often leads to labour disputes, which, in turn, result in incessant closure of higher education institutions in the country. The academic and non-academic staff of Nigerian PHEIs are constantly embarking on labour strikes as a way of demanding the improvement of their incomes and of the infrastructures. Frequent closure of institutions affects the productivity of both staff and students, as well as the learning outcomes of the students.

Because the outputs of both staff and students of PHEIs in Nigeria are being affected by the persistent strike action and inadequate infrastructures, parents are gradually moving their children to private institutions; however, these private institutions are very expensive and are only accessible to a certain percentage of the population who are wealthy. Figure 1.7 is a picture of one of the facilities in a private Higher Education institution in Nigeria, while Figure 1.8 shows that of a public institution; the difference cannot be overemphasised, not only is the room congested, but students also cook in the room.



Figure 1.7: Students' Hostel in a Nigerian Private University in Nigeria  
Source: <https://nileuniversity.edu.ng/campus/campus-facilities/>



Figure 1.8: Student hostel in a public higher institution  
Source: *Committee on Needs Assessment of Nigerian Universities (2012)*

Some parents that afford it now send their children abroad to study, even to some other African countries such as Ghana, and South Africa. The World Bank reported in 2002 that a large number of students from developing countries who are in search of high-

quality tertiary education chose to study abroad. It is noted that the responsibility of providing Higher Education infrastructure is a large and complex one for any government to meet adequately, which is why it is important for governments to explore diverse ways of financing and providing Educational services (Uche et al., 2011).

### **1.3 Problem Statement**

In recent years, improved service delivery has been high on the agenda of many governments all over the world. This is because most governments do not have enough funds to meet public demands for innovative and improved service delivery. Consequently, they have resorted to partnering with the private sector to meet these demands. Amongst many partnership arrangements available, the Public-Private Partnership (PPP) seems to be the most convenient collaborative arrangement (Grimsey and Lewis, 2007). PPP is a cooperative venture between the public and private sectors, formed from the combination of the resource capacity and expertise of each sector, in order to provide a stronger base for delivering public services in a better, more efficient and effective manner (Grimsey and Lewis, 2007).

PPP is one of the many innovative procurement strategies introduced to complement or replace the traditional open competitive tendering route (Ahadzi and Bowles, 2001). PPPs allow asset financing, especially when a particular government is not able to finance the facilities that are needed; they offer an alternative source of financing for improved public service delivery and/or new infrastructure development. (Li et al., 2005). In theory, the main incentives for adopters of PPP are that the risks are allocated to the parties best fitted to bear them, and projects are delivered on time and to cost, however, in practice, there are still indications that this is not the case. In addition, contractors are engaged early in the design stage, thereby giving room for innovation in design and construction ideas (Ball et al., 2003).

Because of its inability to meet the responsibility of funding and providing infrastructure in the PHEIs, like other governments in other parts of the world, the Nigerian government has turned to PPP for the provision of infrastructures to enhance service delivery to its people. Some of the sectors which have benefited include Transportation, Power, and Education. However, the level of private sector participation in the delivery of HE infrastructure in Nigeria is evidently low, as reported in a study carried out in 2013

(Thomas and Thomas-OluFuwa). Even though some institutions have partnered with the private sector for infrastructure procurement, little partnership is witnessed in the provision of academic/social infrastructures. Furthermore, it is evident that the provision of academic infrastructures through PPP has been sparsely researched. Thus, the need to boost private sector participation in Nigeria's HE infrastructure sector, especially in providing academic/social infrastructures, has prompted this research.

According to Thomas and Thomas-OluFuwa (2013), although Nigerian government put in place some reforms for private sector participation in the Education sector; Public-Private Partnership Initiative (PPPI), Community Accountability and Transparency Initiative (CATI), Private Development Initiative (PDI) and Higher Education Collaboration (HEC), these have achieved insignificant success and thereby suggested that there is the need to research more into the factors that are restraining the private sector in the development of HE infrastructure in Nigeria. It is also exposed in the literature that PPP is not new in Nigeria HE infrastructure sector, however, it is mostly seen in the development of economic infrastructures such as students' hostels, but not in providing academic buildings such as laboratories, libraries etc.,

Also, Thomas and Thomas-OluFuwa (2013) stated that the reasons why PPP is not evident in HE in Nigeria is because there is no specific format stated by the government by which, the private and the public sector should partner, the decline in dialogues between the institutions and the private sector, as well as inadequate marketing on the part of the institutions. They therefore specified that PPP in HE can be improved by creating a conducive environment and by developing a robust legal framework, create awareness and sensitising the PHEIs.

Literature also reveals that there is an existing framework developed for the implementation of general PPP projects in Nigeria, but none is specifically designed for HE infrastructure sector (ICRC, 2016). The existing framework would not be suitable for HE infrastructure development, because HE infrastructure are not economic infrastructures in which direct return on services is expected. In conclusion, there is a gap in knowledge that needs to be filled, which is; there is currently no PPP Framework/Model developed for the procurement of social infrastructure projects such as Higher Education infrastructures in Nigeria.



#### **1.4 Justification of the Study**

The increasing need for the Nigerian government to collaborate with the private sector to provide HE infrastructure has prompted this research. In addition to seeking to find a solution to an existing problem behind the inadequacies in the Nigeria HE infrastructure, this research also aims to contribute to the existing gap in the body of knowledge by developing a Model that will help in achieving successful partnerships between the private and the public sector.

The research will also help policymakers as well as professionals to develop a better understanding of what really works in the process of procuring academic/social infrastructures through PPP. This study is set to provide an original contribution to HE infrastructure development in Nigeria, as the proposed Model is expected to be the first of its kind.

#### **1.5 Research Questions**

The need to transform the infrastructure of Nigeria's PHEIs from its current decayed state to an acceptable standard and the increasing need for the Nigerian government to collaborate with the private sector to provide HE infrastructure has motivated this research.

Consequently, this research has sought to answer a major question which is: **Why does the Nigerian Private Sector not find Higher Education Infrastructure an attractive investment area?**

To address this major question, there are other further sub-questions that need to be answered, which are:

- What are the challenges (if any) associated with PPP infrastructure development in Nigeria?
- What are the difficulties (if any) may the private sector face in the delivery of Higher Education Infrastructure in Nigeria?
- How has PPP been applied in the development of Higher Education Infrastructure in Nigeria?

- How can the Nigerian government enhance the participation of the private sector in Higher Education infrastructure development?

## 1.6 Aim and Objectives

The aim of this research is to **develop a Public Private Partnership (PPP) Model suitable for the delivery of physical infrastructure in the Nigerian Higher Education Infrastructure Sector**. Although there is an existing framework designed for all PPP projects in Nigeria, there is no specific Model designed for PPP in the HE infrastructure sector. The existing framework was reviewed in relation to the HE infrastructure sector, taking into consideration that HE infrastructures are not economic infrastructures in which direct return on services is expected.

The specific objectives of the study with explicit reference to Nigeria are:

- To investigate infrastructure needs in Nigerian Public Higher Education institutions in order to ascertain the level of inadequacy.
- To assess the use of PPP in the delivery of Higher Education infrastructure in Nigeria in order to determine the extent of its application.
- To identify and highlight the challenges associated with the traditional method of procuring Higher Education infrastructure in order to proffer solutions to the identified issues.
- To analysis PPP processes applied to higher education infrastructure and services in three developed countries in order to identify opportunities and applicable attributes that can help improve PPP initiatives in Nigeria.
- To identify and highlight the challenges associated with PPP in the Higher Education infrastructure sector in order to proffer solutions to the identified issues.
- To develop a Model for PPP in the Higher Education infrastructure sector, in order to enhance collaboration between the private and the public sectors.

## 1.7 Scope and Limitations of the Study

The study covers Nigeria which is situated in the Sub-Saharan region of Africa. Figure 1.9 shows the Sub-Saharan African Countries and Nigeria, which is the study area.



Figure 1.9: Map of Africa showing the Sub-Saharan African Countries and Nigeria  
*Source: UNESCO Institute for Statistics, 2011*

### 1.7.1 Historical and Geographical Context

According to UNESCO (2011), the Sub-Saharan Africa region is diverse in its historical, cultural, political and environmental contexts. Covering 21.2 million square kilometres, the sub-continent has a varied geography and climate. The geographical diversity, combined with different histories of cultural, social, economic and political developments, create a unique variety of nations and societies across the continent. Out of a total of 45 countries, the largest is the Democratic Republic of the Congo, covering 2.2 million square kilometres, and the smallest country is Sao Tome and Principe, with 1,000 square kilometres (World Bank, 2004).

The population sizes range from 158 million in Nigeria to 85,000 in Seychelles in 2010 (UNESCO, 2011). Many SSA nations became independent from former colonial rule in the 1960s, while the youngest nation in SSA, South Sudan, became independent in 2011. The countries of the region have gone through distinct historical developments (UNESCO, 2011). The year 1960 is called the “African year” since as many as 17 countries gained independence from colonial regimes. Throughout the 1960s, another 15 countries in the region became independent. Expectations were high in the 1960s for economic development of the resource-rich continent of Africa, with strong economic links to European countries. However, recurrent balance of payment failures and economic regression led several African governments to adopt structural adjustment policies in the 1980s, which were intended to open-up markets, encourage deregulation and private initiatives, and reduce state economic intervention. However, while the pace of economic development has picked up in SSA countries since the mid-1990s, the region is still considered to be the poorest in the world.

### ***1.7.2 Demographic and Social Context***

According to UNESCO (2011), approximately 815 million people were living in SSA in 2010, representing 11.8% of the world’s population of 6.9 billion. Moreover, the population of the region is young (43% were under the age of 15 in 2010) and is growing fast, with an estimated growth rate of 2.4% between 2005 and 2010. While this rate has declined from 2.8% two decades ago, it is still the fastest regional population growth rate in the world. By 2030, the population of SSA is estimated to increase to 1.3 billion, representing about 15.7% of the world’s population. This very young and fast-growing population means that there is a large and rising demand for Education.

## **1.8 The Scope of the Study**

The scope of a research is expected to be stated at the outset of the study (Roberts and Hyatt, 2018), therefore, it is important that the scope of this research is detailed. This research is restricted to Educational projects, and it would be useful in future research to compare the application of these innovations across several sectors.

## **1.9 Research Design, Approach and Methodology**

The research approach is the strategic procedure for carrying out a research study (Creswell, 2014), which includes the philosophical assumptions that inspire the style of the research, the method of collecting, analysing as well as interpreting the required data.

In general, it entails laying out the research design (the outline of how data will be collected and analysed), and the research method (the procedures which will be adopted to collect, analyse and interpret data for the research) (Bryman, 2012, Creswell, 2014). The research approach to be adopted is basically informed by the research question/problem to be answered/solved (Crotty, 1998, Creswell, 2014); in this case, the need to understand the real-life context of the problem of PPP in the Nigerian HE infrastructure sector, which will in turn help the researcher to develop the proposed Model, by proposing solutions to the identified PPP challenges.

This research adopted a Constructive Research Approach (CRA), in which both qualitative and quantitative strands of research were used. After a comprehensive literature review, research data were collected in three stages; the first stage was an exploratory survey conducted to corroborate the findings of the literature review, the second stage comprised the case studies of PPP projects in the HE infrastructure sector and the third stage was the expert evaluation of the developed Model. A qualitative research methodology was adopted for the first stage of the data collection, via semi-structured interviews with stakeholders in the field. A mixed-method approach was adopted for the second stage of data collection (case study), where both qualitative and quantitative data were collected via semi-structured interviews and self-completion questionnaires, for the third stage of the data collection, quantitative data was collected through self-completion questionnaires. The full details of the approach and methods adopted for this research are presented in Chapter Four of this thesis.

### ***1.9.1 Research Methods for the Qualitative Strand of the Research***

#### ***Interview***

According to (Bryman, 2012) interview is a strategy by which data is collected during both quantitative and qualitative research. There are three major types of interview; structured, standardised and semi-structured interview (Bryman, 2012). Stakeholders and policymakers in the field of study were interviewed, this allowed for information on the procurement of Higher Education infrastructure to be gathered. Consequently, semi-structured interviews of the management staff of some PHEIs in Nigeria were conducted. In addition, some staff from the Infrastructure Concession Regulatory Commission (ICRC) were interviewed. ICRC is the PPP regulatory body in Nigeria.

### ***1.9.2 Research Methods for the Quantitative Strand of the Research***

#### ***Self-Completion Questionnaires***

When research data are collected via close-ended questions they are referred to as self-completion questionnaires. Quantitative data was collected through self-completion questionnaires; the questionnaires were issued to both staff and students of the case study institutions to gather information about their level of participation in and satisfaction with the PPP projects.

### **1.10 Outline of the Study**

To achieve the aim and objectives of the research, various schools of thought on the choice of research approach were considered and the Constructive Research Approach (CRA) was considered appropriate for the research because it is designed to produce solutions to an identified real-life problem. In the case of this research, the solution is a Model that was developed to improve the participation of the private sector in the delivery of infrastructures for PHEIs in Nigeria. The full description of the research approach and methodology of this study is presented in Chapter Four of the thesis.

Consequently, the research followed the six stages of constructive research approach as identified by Kasanen et al. (1993) and Oyegoke (2011). The activities conducted at each of the six stages are shown in Figure 1:10 followed by a full explanation of the stages.

The Six stages of Constructive Research Process:

1. Find a practical relevant problem which also has a research potential.
2. Obtain a general and comprehensive understanding of the topic.
3. Innovate - construction of a solution idea.
4. Demonstrate that the solution works.
5. Show the theoretical connections and the research contribution of the solution concept.
6. Examine the scope of applicability of the solution.

(Kasanen et al., 1993 page 246) and (Oyegoke, 2011 page 580 – 587)

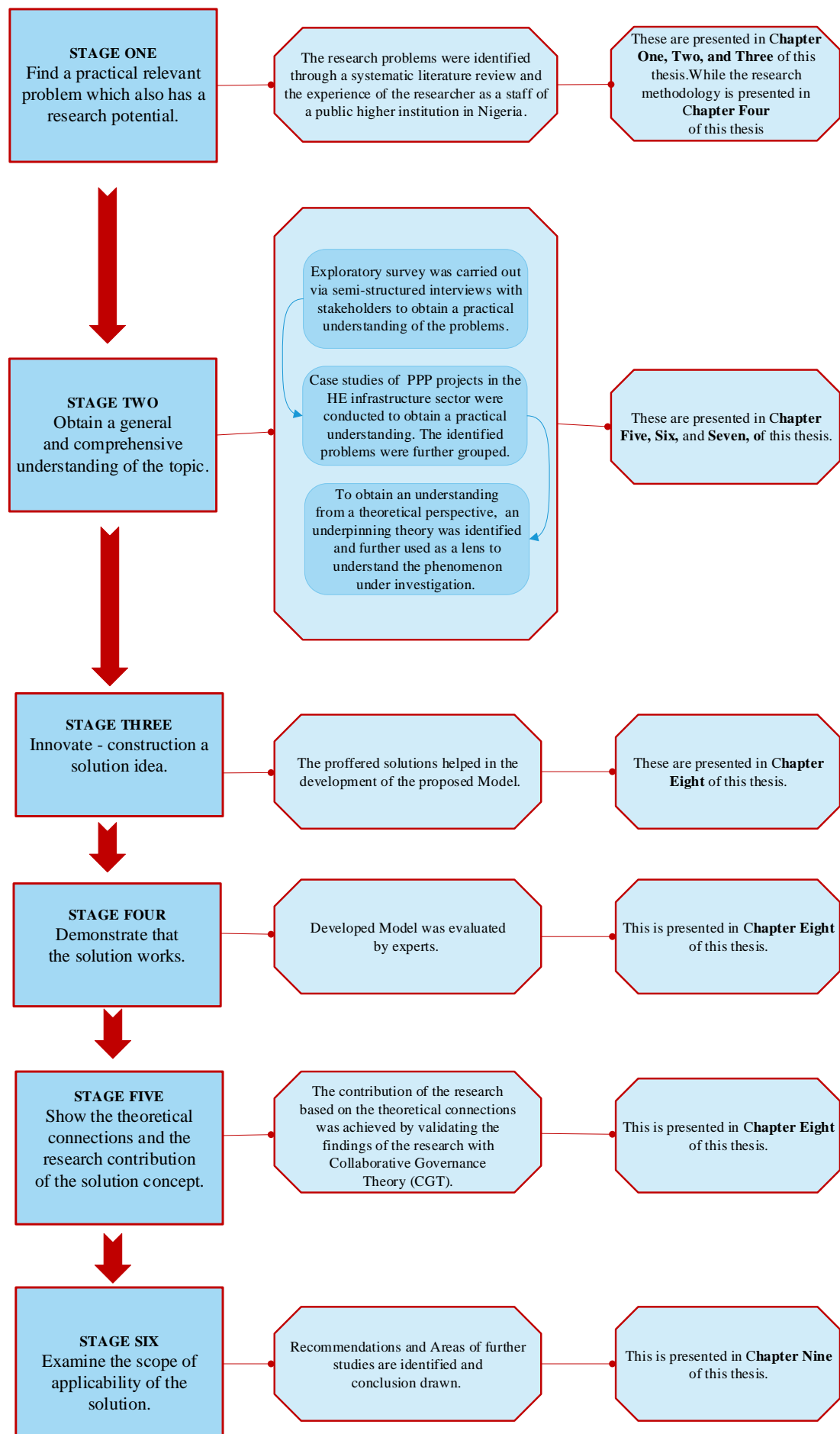


Figure 1.10: Outline of the Study showing the Research Stages

**Stage One: Find a practical relevant problem which also has a research potential**

A systematic literature review was conducted to explore the infrastructure needs in Nigerian PHEIs and to investigate the extent to which the private sector has partnered with the government in HE infrastructure development. The literature reviews also aimed to identify the challenges associated with PPP in Nigeria, especially in the HE infrastructure sector. Hence, the research problems were identified based on the systematic literature review and the experience of the researcher as a staff member of a PHEIs in Nigeria. The findings of the literature review are presented in Chapters One, Two, and Three of this Thesis.

**Stage Two: Obtain a general and comprehensive understanding of the topic**

The second stage is to obtain a good understanding of the topic from both practical and theoretical perspectives. To obtain a practical understanding of the problems, the findings of the literature review conducted in stage one were corroborated by an exploratory survey which was conducted via semi-structured interviews with stakeholders, in which new problems and challenges associated with PPP in the HE infrastructure sector in Nigeria were further identified.

In addition, case studies of completed PPP projects in the HE infrastructure sector were conducted to gain an in-depth understanding of the problems as they affect individual projects. An analysis of PPP processes in HE infrastructure and services sectors of three developed countries (Canada, UK & USA) was also carried out and applicable attributes were identified. To achieve an understanding from the theoretical perspective, a theory that is relevant to the research problem was identified based on its applicability; thus, Collaborative Governance Theory (CGT) was identified as the underpinning theory for the research study. CGT was further used as a lens to understand the phenomenon under investigation.

The reports of the findings from the exploratory survey and the case studies are presented in Chapters Five and Six of this thesis respectively, while the theoretical understanding of the problems (theoretical framework) is presented in Chapter Seven of the thesis.

**Stage Three: Innovate - construction of a solution idea**

At this stage, a solution is developed to solve the real-life research problem that was identified. In the case of this research, the solution constructed is a Model for PPP



procurement process in the HE infrastructure sector. The Model was developed based on the findings of the literature review, exploratory survey, and case studies. The applicable attributes derived from the PPP processes of HE infrastructure development of the three developed countries aided in proposing solutions to the identified problems; these were then incorporated in the proposed Model. The developed Model is presented in Chapter Eight of this thesis.

**Stage Four: Demonstrate that the solution works**

To show that the solution (developed Model) can work, and to ascertain the applicability; it was evaluated by experts in the field, as well as stakeholders of HE infrastructure sector in Nigeria. The experts' evaluation is reported in Chapter Nine of this thesis.

**Stage Five: Show the theoretical connections and the research contribution of the solution concept**

The developed Model was validated theoretically at stage four of the study. The contribution of the research based on the theoretical connections was achieved by validating the findings of the research with Collaborative Governance Theory (CGT), as presented in Chapter Nine of the thesis.

**Stage Six: Examine the scope of applicability of the solution**

Recommendations are made, and areas of further studies are identified, and conclusions drawn in Chapter Nine of this thesis.

## **1.11 Thesis Structure**

The thesis is divided into Nine chapters as shown in Figure 1.11. Chapter One has explained the introductory background of the research, while Chapter Two is a critique of the existing procurement process in the HE infrastructure sector. The general concepts and debates regarding PPP are discussed in Chapter Three. Chapter Four describes the approach and methods by which the study was conducted, while Chapter Five presents the analysis and discussions of the data and findings of the exploratory survey conducted, and the findings of the case studies conducted are presented in Chapter Six. The development of the Model, the theoretical validation of same together with the experts' evaluation of the Model are presented in Chapter Eight and, finally, Chapter Nine covers the conclusion and recommendations of the study.

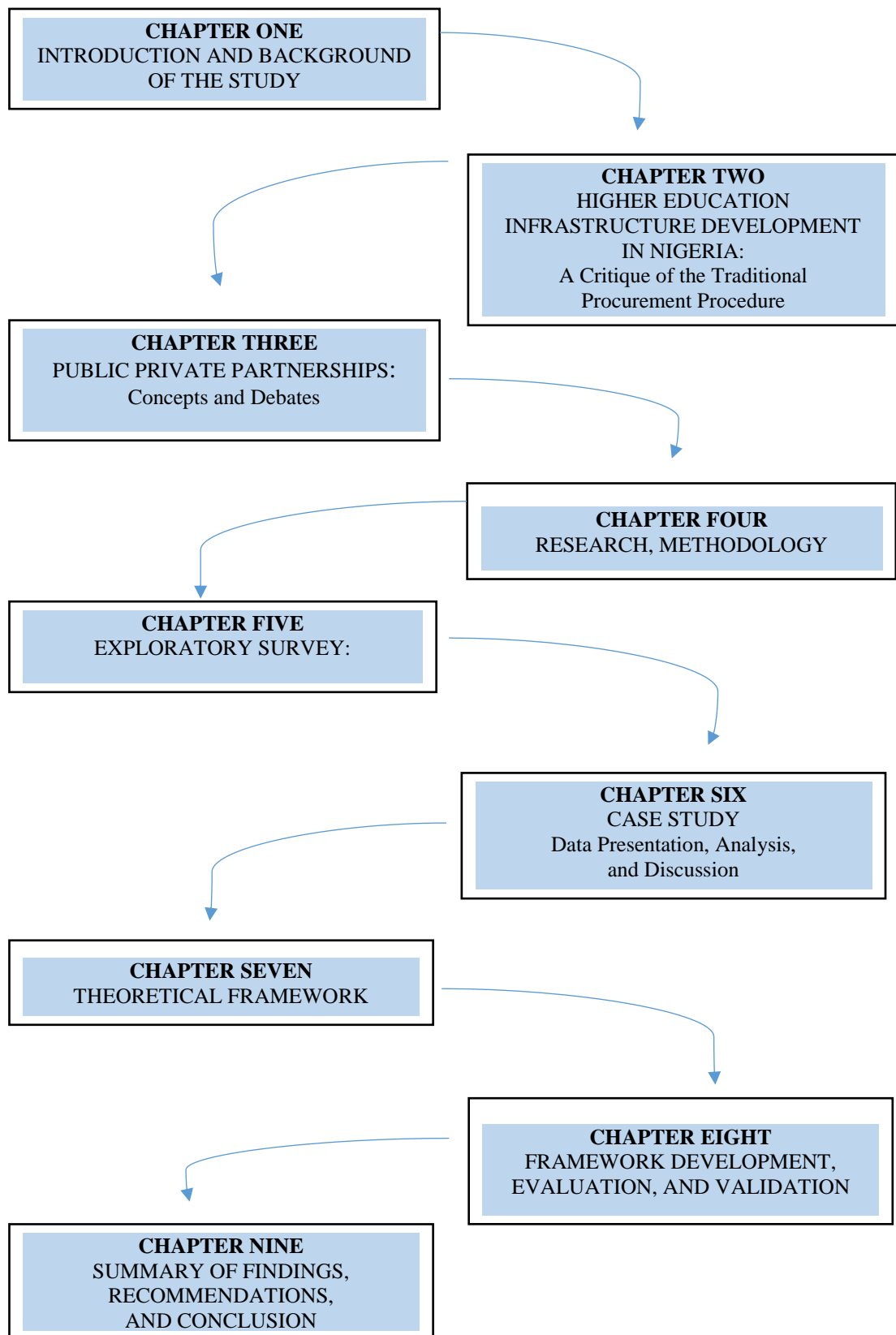


Figure 1.11: Thesis Structure

## **1.12 Chapter Findings and Summary**

This chapter has identified the research problems; which are shortage of infrastructure in Nigeria public higher education institutions, and the increasing need for public higher institutions to partner with the private sector to procure higher education infrastructures. The chapter also explained the justification, aim, and objectives of the research, together with its conceptual framework, which shows all the stages of the research as well as the structure of the thesis.

The following are some of the findings that emerged from the study:

- There is a shortage of infrastructure in public higher institutions of learning in Nigeria, the available infrastructures are dilapidated and unfit for both teaching and learning.
- The most critical among the challenges faced by the public higher institutions of learning in Nigeria is inadequate funding (Ahmed, 2010; Asiyai, 2013).
- PPP is already introduced to Nigeria infrastructure development sector, but it is not prominent in higher education infrastructure development, although a few student residences are already procured through Build Operate Transfer (BOT) Model in some of the higher institutions, where social and academic infrastructures are left behind.
- There is an existing framework developed for all types of PPP projects, but none is specifically designed for the procurement of social infrastructures such as education. Social infrastructures are not like economic infrastructures in which direct return on services is expected, hence the need to develop a framework specifically for PPP projects in the higher education infrastructure sector.

Following the identification of the research problems, it is therefore important to examine the current situation of infrastructure development in the higher education infrastructure sector, therefore a critique of the current infrastructure procurement process in public higher institutions is presented in the next chapter.

## Chapter 2: **HIGHER EDUCATION INFRASTRUCTURE DEVELOPMENT IN NIGERIA**

### A Critique of the Traditional Procurement Procedure

#### **2.1 Introduction**

This chapter presents the traditional procurement process of Higher Education (HE) infrastructure in Nigeria. The different stages of the process are presented in the form of a flowchart in this chapter; the purpose of evaluating the current procurement process is to be able to identify any challenges associated with the processes.

#### **2.2 Higher Education Infrastructure Development in Nigeria**

Public higher education institutions in Nigeria are mainly funded by the Federal Government, the process of accessing the funds, as well as the procurement process are described below.

##### **2.2.1 *Project Identification***

Construction projects are responses to specific needs (Morledge and Smith, 2013), hence the need for a project is identified and conceptualised by the tertiary institution. This could be a need for an entirely new facility or a renovation of an existing infrastructure. These needs for facilities such as a laboratory or lecture hall are usually identified by either the department or the faculty and request for approval is then forwarded to the Vice-Chancellor.

According to Morledge and Smith (2013), the strategic fit, the cost and value of a project, and the decision to either build or not to build is made at the inception stage, therefore the Vice Chancellor of the institution acts upon the request by requesting input from the estate department (Directorate of Physical Development) which would carry out the assessment of the proposed need in terms of design and cost estimate. Chinyio and Olomolaiye (2010) point out that wants and needs are two different things, although they are usually referred to as the same thing in construction projects. Need they explain is the ‘*state*’ in which someone feels a ‘*deprivation*’, whereas want, on the other hand, is defined as things desired to satisfy ‘*cravings*’. Therefore, at this stage, where the need of a project is

identified, it should be clear whether it is a need or a want; what the institution would like might not necessarily be the facility which is needed at that time.

### ***2.2.2 Project Preparation***

The cost of the project is estimated by the estate department; the determined cost of the project is thereafter included in the year's annual budget.

### ***2.2.3 Project Approval***

If the cost of the project does not exceed N10 million, it would be certified by the Resident Dues Process Team (RDPT) of the institution and approved by the Vice Chancellor/Chief Executive Officer. This project would then be awarded to a contractor without the need for an Open Competitive Tender. However, if the cost of the project is between N10 million and N250 million, it would be referred to the institution's Governing Council and certified by the Resident Due Process Team (RDPT). Members of the Governing Council would deliberate on the project and further approve it if there are no objections. On the other hand, projects estimated to cost between N250 million and N1 billion would be recommended to the Ministerial Tenders Board (MTB) by the institution's Governing Council, to be certified by the Ministry Resident Due Process Team (MRDPT). Any project which would cost N1 billion and above must be recommended to the Federal Executive Council (FEC) by the institution's Governing Council, through both the National University Commission (NUC) and the Federal Ministry of Education (FME). A due process certificate would also be obtained from the Budget Monitoring and Price Intelligence Unit (BMPIU) of the Presidency, through the NUC.

### ***2.2.4 Project Advertisement***

Projects which would cost between N1 million and N10 million are advertised on the notice board of the institution, without any need for prequalification of contractors and thereafter awarded to a qualified contractor. However, projects which exceed N10 million are advertised in at least two national dailies and the Federal Tenders Journal; a call for pre-qualification is also made alongside the advert if the project is estimated to cost over N300 million. Projects which are estimated to cost below N300 million are advertised without the need to call for the prequalification of contractors.

### ***2.2.5 Preparation of Tender Documents***

Tender documents are prepared either in-house by the technical staff of the institution or prepared by appointed professional consultants. This form of procurement is referred to as Open Competitive Tendering, which does not allow the contractor to contribute in any way to the design process of the project, the contractor will usually not accept design liability. This form of procurement does not give opportunity for innovation, it is for this reason that Wang (2014) advocates the need for contractor to be involved in the procurement process at the early stage of the project, especially in the design process in order to allow for innovation in construction. Also, in this procurement method. Also, the time between the advert and the assessment of the bidders are usually short and makes it very difficult to assess the true capacity of the contractor.

### ***2.2.6 Prequalification of Contractors***

Prequalification of contractors is said to have a considerable impact on the output of construction projects in term of time and quality (Aje, 2012). Contractors are prequalified based on already identified criteria. Shortlisted contractors are thereafter invited to pick up the tender documents for the projects and return them within a specified period.

### ***2.2.7 Opening of Tenders***

The tender documents are opened in the presence of all the bidding contractors; the preferred bidder is then selected, based on the approved criteria, usually the lowest responsible bidder, Adedokun et al. (2013) suggest that there is a tendency for the total cost of the project to increase as a result of the cost of tendering; this is because the bidder would want to recover money spent on bidding.

### ***2.2.8 Award of Contract***

The contract is awarded to the preferred bidder, in most cases the lowest bidder, although, the lowest bidder does not necessarily mean the best contractor that can do the job. Sometimes some contractors exclude some costs, and sometimes reduce profit so as to win the contract; this usually results in variation and delay in the construction process.

### ***2.2.9 Project Implementation and Monitoring***

At the implementation stage, the contractor is mobilised onto the site; with 25% of the contract sum as the mobilisation fee. The project is thereafter monitored to completion by the appointed professional consultants and/or the estate department of the tertiary institution. At certain stages of the construction work, progress payment certificates are raised, and payment made to the contractor, but in situations where payments are delayed, the contractor is not able to proceed with necessary work, thereby delaying the completion of the entire project.

### ***2.2.10 Project Completion***

At this stage, the project is completed, inspected and handed over to the institution. 10% of the contract sum is retained as a retention fee for a period of one year, which is usually referred to as the defect liability period.

### ***2.2.11 Facility Operation***

The completed facility is put into use by the institution for the purpose which it was identified. The contractor will then carry out repairs on the facility throughout the one-year defect liability period, at the expiration of this period, the institution takes over the maintenance of the facility. This process does not allow the contractor to conduct any further maintenance of the facility after the expiration of the liability period.

## **2.3 Shortfalls of the Traditional Procurement Process**

Although during a traditional procurement process, proposed projects are tendered at the institutions' senate meetings, where the proposed project is discussed, at management level; that makes some of the stakeholders aware of the project. However, the shortcoming of this process of project procurement is that some stakeholders are still left behind in the process. Staff and students should be involved in considering the proffered solution to their needs. In many cases, for example, facilities lack the provision of facilities for disabled students. Moreover, the contractor's input is not sought at the design/planning stage; this means that the client bears the design risk.

Projects are usually not properly planned, and in some cases, such projects end up being abandoned because of inadequate planning (both technical and financial). According to

(Ewa, 2013) most projects are abandoned because they are conceived based on an inappropriate rationale, and conflicts of interest amongst stakeholders. In addition, changes in the market environment, as well as incorrect assumptions, are other reasons for failures at the pre-design stage of construction projects (Chinyio and Olomolaiye, 2010). Another problem associated with this procurement process is that approximate value is used for projects during budget planning stage; this has also contributed to many projects being abandoned.

Project approval is usually a long process which sometimes causes delay in providing the necessary facilities needed by students at that time. Thus, they may have to wait for as long as the process takes, while some may have graduated by the time the approval is granted or the facility is provided. Projects which are not approved are presented again in subsequent years or even cancelled entirely; when this happens, the need for the facility is not met and therefore will affect the performance of the institutions and their obligations to the enrolled students. There is therefore a need to find ways of financing assets, especially in the cases of projects that the government is not able to finance.

A construction project is considered successful if it is completed within the estimated period, cost and to an acceptable standard and also to the satisfaction of the stakeholders of the project (Walker, 2015), but most Higher Education infrastructure projects are abandoned halfway to completion, as a result of the lack of a clear and well defined vision and objectives by the management of the institutions (Ewa, 2013), however the cause of abandoned projects in the HE infrastructure sector is not only as indicated by Ewa (2013) but as a result of lack of funding and the inability to properly manage the available funds by the institutions.

Adedokun et al. (2013) assessed the competitive tendering methods of procuring educational building projects in Nigeria and concluded that the current competitive tendering method of procurement exposes projects to financial and political, as well as logistic risks. Tertiary institutions should therefore look at ways by which most of the identified risks can be minimised or allocated to the party which is most able to minimise them.

In the bid to come up with suitable procurement route for construction projects, innovative procurement strategies have been introduced as alternatives to the traditional



open competitive tendering route (Ahadzi and Bowles, 2001). These innovative procurement routes allow asset financing, especially when the government is not able to finance the needed facilities, and in addition, an alternative source of financing public services/infrastructure is made available by being able to access the financial market (Li et al., 2005). Other benefits of these forms of procurement include the allocation of risk to the party for whom it is best fit, the project to be delivered on time and to cost, and participation of the contractors during the design stage, thereby giving room for innovation in design and construction ideas.

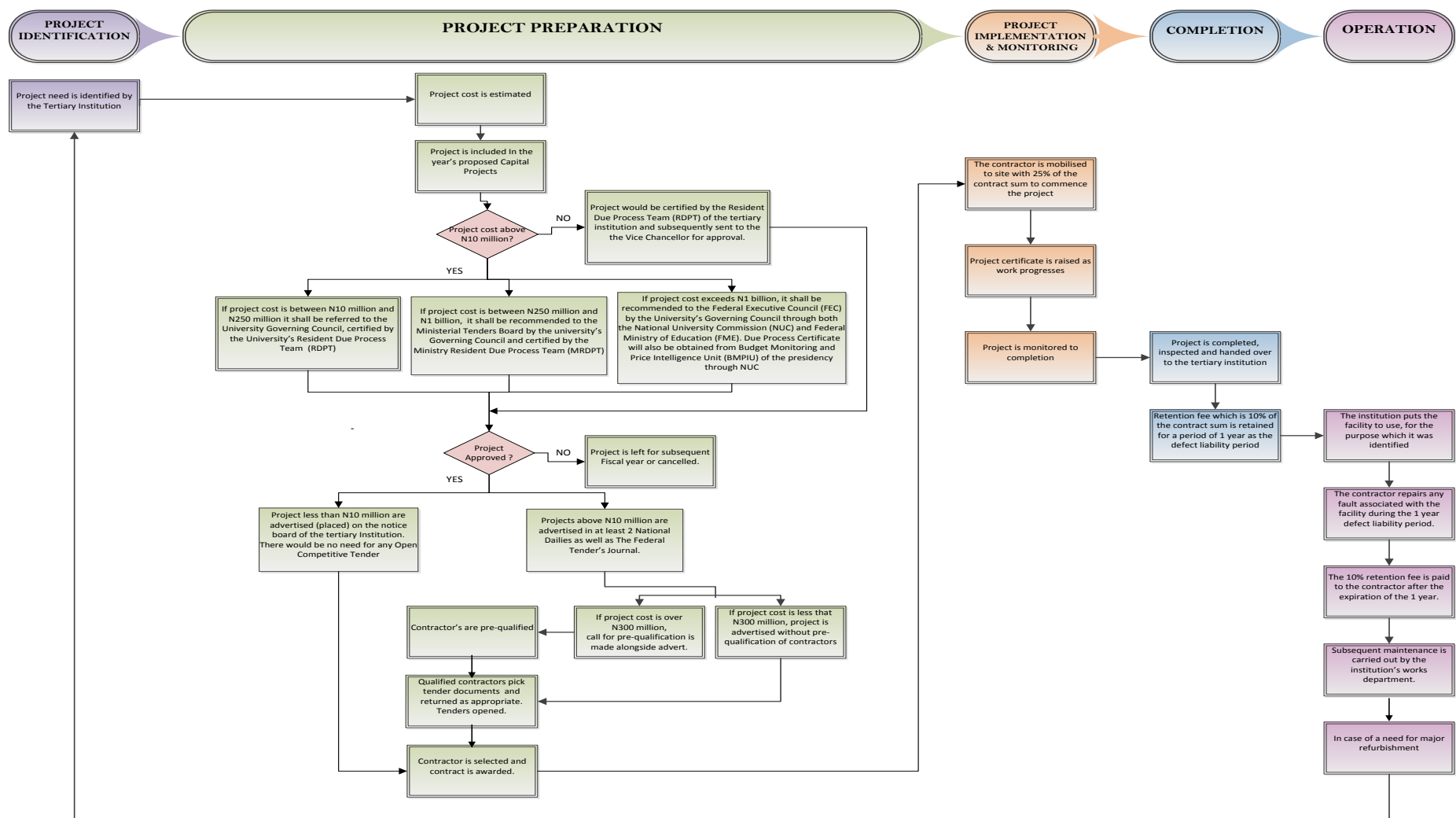


Figure 2.1: Schematic Diagram of the Traditional Procurement Process (also attached as Appendix 2.1).

## **2.4 Chapter Findings and Summary**

This chapter has reviewed the traditional process of procuring Higher Education infrastructure in Nigeria. The shortfalls of the process have been identified, and the need for other innovative and sustainable procurement routes has been evaluated. This chapter also revealed that procurements of infrastructures in public higher institutions in Nigeria are majorly through the traditional procurement route, usually Open Competitive Tendering, which does not allow the contractor to contribute in any way to the design process of the project. The next chapter will discuss the concepts and debates of Public-Private Partnerships, both locally in Nigeria and globally.

## Chapter 3: **PUBLIC PRIVATE PARTNERSHIPS**

### Concepts and Debates

#### **3.1 Introduction**

This chapter presents the concepts and debates regarding Public Private Partnership (PPP) both internationally and locally in sub-Saharan Africa and in Nigeria. The current application of PPP in Nigeria and in the Nigerian HE infrastructure sector is presented in this chapter, together with the existing PPP framework designed to cater for general PPP procurement processes.

#### **3.2 Public-Private Partnerships**

In an attempt to improve the provisions and conditions of public services in terms of quality and accessibility, Public-Private Partnership (PPP) was introduced globally as a method of procurement (Akintoye and Beck, 2009). This has been embraced in Sub-Saharan Africa (SSA) as it has been in other parts of the world. Since its introduction, this method of procurement has improved the quality of infrastructure provision in various sectors all over the world (Lapan et al., 2012).

The method by which the provision of basic infrastructure and services is distributed to meet the demands of the public in general usually determines the level of economic activities and, in turn, the overall development of a nation (Ogunyinka, 2013). Consequently, PPP was introduced to permit an expansion of infrastructure provision beyond what a government on its own could possibly achieve, given the constraints in the budget and lack of available project management skills (Ogunyinka, 2013). PPP is an alternative form of procurement to procure large infrastructure where funds are not available (Kurniawan et al., 2014). PPP is regarded as a cooperative venture between the public and private sectors (Grimsey and Lewis, 2004), formed by combining the resource capacity and expertise of each sector in order to provide a stronger base for delivering defined public services in a better, more efficient and effective manner (Akintoye and Beck, 2009) and it is expected to deliver value for money (Kurniawan et al., 2014). PPP has therefore been accepted globally as a means of procuring public services and infrastructure (Li et al., 2005). Many researchers believe that PPP is a way through which governments can meet their investment needs without having to raise finances, while

reducing the rate at which they are exposed to risk (Akintoye and Beck, 2009, Lapan et al., 2012), and it is also regarded as a way to increase accountability (Lapan et al., 2012).

According to Stake (Stake, 2010), PPP offers a means of mobilising private funds to deliver public services whilst government manages the relationship via a negotiated PPP agreement in order to ensure the quality of services rendered. The theory and practice of PPP has advanced significantly over the years and the history of PPP suggests that although the focus in the past was largely on the construction and management of infrastructures such as toll roads, hospitals and prisons, the focus in recent years has shifted to public services such as Health, and Education (Akintoye and Beck, 2009). Many researchers have observed that PPP arrangements are not uniform worldwide but that countries are innovative in their use of PPP (Akintoye and Beck, 2009).

### **3.2.1 Definition**

It should be noted that PPP does not have any specific legal meaning and can be used to describe a variety of arrangements which involve the public and the private sectors working together in any way. The World Bank (2009) refers to PPP as an arrangement between the government and a private enterprise, in which the private enterprise provides infrastructure and delivers services that would usually be provided by the government, with the aim of combining the best skills of the public and the private sectors to achieve a mutual benefit while improving service delivery.

### **3.3 Modalities of Public-Private Partnerships**

PPP can be in a variety of forms: this study focuses primarily on those that arrange for a private party to provide public infrastructure under a long-term contract with a public-sector body. Under such an arrangement, the private sector party usually agrees to undertake the following:

- Design and build or upgrade the public-sector infrastructure
- Assume substantial financial, technical, and operational risks
- Receive a financial return through payments over the life of the contract from users, from the public sector, or from a combination of the two.
- Return the infrastructure to public sector ownership at the end of the contract (in some cases the private party may retain ownership of the asset).

As detailed by (World Bank, 2009), terms such as BOT (Build, Operate, and Transfer) or DOBRO (Design, Build, Finance, and Operate) are often used to describe such schemes; when the infrastructure is not returned to the public sector, it is sometimes referred to as a BOO (Build, Own, and Operate) contract. While different sectors will have their own issues, these arrangements can apply across a wide range of infrastructure provision. Whether in power generation, roads, or the provision of schools or hospitals, the broad nature of the PPP is determined by what rights, obligations, and risks are assumed by the public or private parties within the partnership. In this regard, two principal forms of PPP are common: concession and availability-based PPP (World Bank, 2009).

### ***3.3.1 Concession Public-Private Partnership***

In a concession PPP, a public authority grants a private party the right to design, build, finance, and operate an infrastructure asset owned by the public sector. The concession PPP contract is for a fixed period, say 25–30 years, after which responsibility for operation reverts to the public authority (World Bank, 2009). The private party recoups its investment, operating, and financing costs and its profit by charging members of the public a user fee (for example, a toll). Thus, a key feature is that the private party usually assumes the risk of demand for use of the asset, in addition to the risks of design, finance, construction, and operation (World Bank, 2009). However, demand risk may be allocated in various ways: for example, the public authority may share the risk by underwriting a minimum level of usage. User charges may be either prescribed in the PPP contract or set by the concessionaire. Typical examples of this type of PPP include toll roads, railways, urban transport schemes, ports, and airports (World Bank, 2009, Yescombe, 2011).

### ***3.3.2 Availability-Based PPP***

According to the World Bank (2009) and Yescombe (2011), the other main form of PPP is similar to concession PPP, in that it also involves the private party designing, financing, building or rebuilding, and subsequently operating and maintaining the necessary infrastructure. However, in this case, the public authority (as opposed to the user) makes payments to the private party, as, when, and to the extent that a public service is made available. Hence the demand or usage risk remains with the public authority. The original form of availability-based PPP is the power purchase agreement (PPA) used in power

generation projects. In this case, private investors build a power generation plant and contract to sell the electricity generated to a publicly owned power utility. The public authority assumes the demand risk and makes a minimum payment for availability (World Bank, 2009, Yescombe, 2011). Many governments have found these types of PPP to be very effective in ensuring that public facilities are delivered on time and to budget, properly maintained, and are able to deliver public services in the context of constrained resources. The United Kingdom pioneered this form of PPP as part of its Private Finance Initiative (PFI) program for the provision of social infrastructure. Many other countries, such as Australia, Canada, and the United States of America, are increasingly using this approach.

### **3.4 Analysis of Public-Private Partnerships in Developed Countries: The Case of Canada, the United Kingdom, and the United States of America**

International best practices in PPP are researched by analysing PPP processes in three developed countries; Canada, the United Kingdom, and the United States of America, where PPP processes are mature. Canada, UK and the USA are identified as favourable for this purpose, on the basis that PPP in these countries is mature because of the various challenges these countries have undergone since the introduction of PPP into their economies and systems.

PPP in Canada has been identified as one of the most successful in the world (Vining and Boardman, 2008), one rationale for the adoption of PPP in Canada was the ability to eliminate up-front capital expenditures, thereby taking capital projects off government budget (Li et al., 2001). The adoption of PPP into the system is also said to be based on political reasons. Similarly the ability to procure infrastructure while cutting government spending is one of the reasons why PFI was introduced in the UK (Li et al., 2001, Bing et al., 2005) and PPP is said to reduce the risk of financial exposure when it comes to the cost of construction (Li et al., 2001). The United Kingdom embraced Public-Private Partnerships, called Public Finance Initiatives (PFI), since the year 1992 (Winch, 2012), thus, PPP in the UK is well established; the governments have used PFI, a model of PPP, to deliver many infrastructures including hospitals, prisons and schools. In the USA, PPP is mature and has undergone reforms since its introduction to the country's infrastructure development sector. While in Canada, there are a variety of models or ways of conducting PPP partnerships, so it is not one size fits all; the model to be used is determined by the

type of infrastructure to be provided. On the other hand, in the UK there is mainly one Model, which is PFI until recently when Scotland introduced the Non-Profit Distribution (NPD) model into the system.

PPP is commonly recognised as a significant means of financing public sector infrastructure projects and various models of PPP and approaches to partnerships exist in different countries worldwide. These often depend on the type of infrastructure to be procured. In most developed countries, PPP has advanced to full maturity (Winch, 2012), while some other countries test new forms of partnership as they apply lessons learnt from other countries (Winch, 2012). On the other hand, some developing countries, especially Nigeria, still struggle with implementing successful PPP mechanisms.

PPP in Canada is characterised by the fact that there are regular updates of future projects where consistent and a predictive procurement process is in place. Canada also follows a competitive, efficient and transparent bidding process for any PPP project, which helps to avoid stakeholder-related problems. The system also avoids a prolonged bidding/procurement period. Standardised documentation is also introduced. One of the success factors identified by (Dixon et al.) is the consultation with end-users; which usually allows for the user's needs to be effectively analysed and reflected in the designs and the facilities. Similarly, the UK also engages in a competitive bidding process for PPP projects; the problem of separation between the design team and end users is mediated through a Special Purpose Vehicle (SPV), which is usually formed as the project company. PPP in the UK is characterised by stakeholders' engagement and agreement, discussion with external parties, an experienced project team being put in place, a project governance structure being set up and public participation. PFI in the UK is generally seen to comprise three major parties: the awarding party, the project company, known as an SPV, and the funding body, which usually funds the project (Dixon et al., 2005). With all these in place, the problem of project governance and stakeholders' challenges will be brought to the minimum.

In comparison, the success of PPP in the USA is attributed to features which include: hearing everyone's opinions, by identifying and involving stakeholders, avoiding non-complete clauses, student-centred priorities for school projects, requesting proposals as against unsolicited proposals, clearly defining the need and a proper identification of the solution to the need, and a well-developed project framework,



In addition, research findings by Dixon et al. (2005) show that PPP Stakeholders in the UK usually base project success on the ability to achieve individual objectives rather than the usual success criteria. This shows that the opinions and contributions of the stakeholders in any PPP project are very important and would have a great impact on the success of such a project. The involvement of stakeholders in decision making during a PPP is characterised as a very important aspect of PPP governance arrangements (Nederhand and Klijn, 2018). However, Nederhand and Klijn (2018) also found that stakeholders involvement does not have as much effect on the performance of the project as the technicality of the project does. Nevertheless, (Hodge et al., 2010) argue that collaboration with PPP stakeholders is of benefit in many ways, such as mutual gains, improved trust in other stakeholders, enhancing the efficiency and effectiveness of coordination of the project, acquiring knowledge and information, and improving the legitimacy of project decisions. A National opinion survey on infrastructure and P3s conducted in 2016 shows that 67% of Canadians support PPP (Canadian Council for Public-Private, 2017), in other words, two out three Canadians support PPP.

When it comes to funding of PPP projects, early involvement of the project funding organisations is one of the success factors of implementing PPP in the UK (Dixon et al., 2005), this allows for the analysis of available funds at the early stage of the project and also minimises the risk of abandoned project (Dixon et al., 2005). In the UK, banks are the major sources of funding for PFI projects. This is settled at the planning phase of the project, where a Special Purpose Vehicle (SPV) i.e. the project company, is set up to include the funding bodies, while the client pays the banks the debt owed, on construction, which is a way of reducing the interest rate from that of the private company to that of the public sector. However, in Canada, PPP projects are mainly dependent on bonds; developers also access project funds through equity and debts.

PPP in the UK is usually based on the Unitary Payment system, which involves Availability Payment and Service Fee, while in the USA, the payment methods include User Charges plus Subventions, Usage Based Payment and Service Fees or Service Performance Payment; however, the choice of any of these will depend on the nature of the project to be procured.

Uncertainty of demand is due to changes in demography which result in either an increase or decrease in the demand for a certain facility procured through PPP, which could result in unforeseen variations in the demand for the facility. The ability to properly transfer risk to the party that is best able to manage it is one of the characteristics of PPP in Canada. Moreover, the problem of control over demand is usually mitigated by making sure that the bond moves with GDP growth or the usage target is revised at regular intervals throughout the life of the project.

### **3.5 Public-Private Partnership in Sub-Saharan Africa**

Sub-Saharan African governments, like other governments worldwide, have turned to PPP to improve the provision of infrastructures in their countries and to enhance service delivery to their people, but the level of private sector participation in infrastructure development remains low in SSA, especially in the provision of HE infrastructure. The World Bank's Private Participation in Infrastructure (PPI) Project Database reported that other regions of the developing world have moved ahead of Africa in involving the private sector in infrastructure development. Africa is said to rank far behind other emerging markets in terms of infrastructure density (World Bank 2012). This is because there is a noticeable shortfall in the investment required for the needed improvements to the continent's infrastructure, and therefore Africa is in dire need of improvements to its infrastructure. Recent activities of PPP in SSA show that there are great opportunities that await private sector investment in SSA (World Bank 2012).

Realising the fundamental aim of forming PPP has eluded many countries especially in Sub-Saharan Africa; this has particularly been witnessed in the HE infrastructure sector, especially in Nigeria. Studies show that there is little or no use of PPP in this sector in some SSA countries, and the quality and accessibility of HE has continued to fall short of stakeholder expectations in this region.

### **3.6 Public-Private Partnerships in Nigeria**

The Federal Government of Nigeria passed the Infrastructure Concession Commission Act (ICRC Act 2005), which acts as the legal framework guiding private participation in public services. There are also sector-specific laws and agencies that regulate services. The ICRC Act regulates the participation of the private sector in financing, construction, development, operation, and maintenance of Federal Government infrastructure or

development projects through concessions or contractual arrangements. ICRC is responsible for setting out guidelines to promote, facilitate and ensure implementation of PPP Projects in Nigeria, with the objective of achieving better value for money (VFM) for infrastructure services and enhanced economic growth.

The legislation on PPP procurement in Nigeria is provided under the Infrastructure Concession Regulatory Commission Act 2005 and the Public Procurement Act 2007. These Acts set out the requirements for competition in all public procurement and for the prior approval by Federal Executive Council (FEC) of all PPP contracts. The key strategic objective for the Infrastructure Concession Regulatory Commission (ICRC) is to accelerate investment in national infrastructure through private sector funding by assisting the Federal Government of Nigeria and its Ministries, Departments, and Agencies (MDA) to implement and establish effective PPP process.

The scope of the Federal Government's programme for PPP is the creation of new infrastructure and the key expansion and refurbishment of existing assets at the Federal level in the following areas:

- Power Generation and Transmission/Distribution Networks.
- Roads and Bridges.
- Ports (Air and Sea).
- Railways.
- Inland Container Depots and Logistics Hubs.
- Gas and Petroleum Infrastructures such as Storage Depots and Distribution Pipelines.
- Water Supply, Treatment, and Distribution Systems.
- Solid Waste Management.
- Educational Facilities (e.g., schools, universities).
- Urban Transport Systems.
- Housing.
- Healthcare Facilities.

In addition, some State Governments are considering using PPP to develop infrastructure; although each state is responsible for its own investment projects, many PPP projects within a State will be financed with the support of a guarantee by the Federal Government. In providing any such guarantees, the Government will have regard to the best practices as stipulated by its own PPP Policy and guidelines.

At the state level, Lagos State is the only state that has established a legal procedure for the regulation of PPP arrangements in infrastructural development. Under Section 6 (7) of the Lagos State Roads, Bridges and Highway Infrastructure (Concessionaire Participation) Development Board Law, the Board has a duty to make and issue procedures regulating the procurement of goods and services, the award of contracts and the grant of concessions to private investors.

The other states of the Federation also have their own internal tender procedures and regulations guiding the procurement and tendering of public contracts by their various ministries. These typically require intending contractors to be registered with the states' ministries of works and other relevant agencies or parastatals.

### **3.7 Challenges Associated with PPP in Nigeria**

Public-Private Partnerships imply the participation of a wide range of actors and stakeholders, who are involved as contracting parties. These include consumers/users, regulators, NGOs, trade unions, environmental groups, and independent operators. Because of the complexity and quality of relationships among the contracting parties, an appropriate distribution of roles between national and local authorities and the private partner is essential and should be clearly defined. The effectiveness of the regulatory framework is a critical factor in any arrangement for PPP. Government capacity to set up appropriate regulatory systems and consequently make appropriate decisions about private sector participation can determine which partnership options are most suitable for a project. Moreover, the regulatory system selected by the government can considerably affect the business environment. This determines the competitiveness and ability of private operators to conduct business efficiently.

Since its introduction in the country, PPP in Nigeria has faced a series of obstacles, such as inadequate infrastructure support. In some instances, local private operators also face increased competition from multinational companies.

According to Ahmed, (2011) *“Inadequate experience in Public-Private Partnerships inappropriate political involvement at the implementation stage, not enough due diligence by the contracting authority, weakness in project preparation”* are some of the challenges currently faced by PPP processes in Nigeria. Dahiru et al. (2013) also

identified “*engaging in projects that do not suit PPP approach, corruption, wrong selection of partner and PPP model, inconsistent government policies/legislative/ legal framework*” as some of the challenges of PPP in Nigeria.

### 3.8 The viability of PPP in Higher Education Infrastructure Development

There are several ways by which the government can partner with the private sector in the development of higher education infrastructure and services; however, facility/infrastructure developments, as well as building maintenance, are considered in this research study.

Table 3.1: Types of PPP Contracts in Education

What Governments Contract for	What Governments Buy
Management, Professional, Support Services (input)	<ul style="list-style-type: none"> <li>▪ School management (financial and human resources management).</li> <li>▪ Support services (meals and transportation).</li> <li>▪ Professional services (teacher training, curriculum design, textbook delivery, quality assurance, and supplemental services).</li> </ul>
Operational Services (process)	<ul style="list-style-type: none"> <li>▪ The education of students, financial and human resources management, professional services, and building maintenance.</li> </ul>
Education Services (outputs)	<ul style="list-style-type: none"> <li>▪ Student places in private schools (by contracting with schools to enrol specific students).</li> </ul>
Facility Availability (inputs)	<ul style="list-style-type: none"> <li>▪ Infrastructure and building maintenance.</li> </ul>
Facility Availability and Education Services (both inputs and outputs)	<ul style="list-style-type: none"> <li>▪ Infrastructure combined with services (operational or educational outputs).</li> </ul>

Source: World Bank, 2006.

### 3.9 Current Application of PPP in Nigerian Higher Education Sector

As with other countries, such as the USA, Australia, Canada, and the UK, the private sector can help to provide new HE infrastructures in Nigeria and also help to upgrade or renovate existing ones. Although the private sector has been able to partner with the public sector in the countries mentioned in providing education infrastructures, mostly in providing facilities such as students’ hostels. An example of social infrastructure is that

of the University of Oklahoma; in which a 50-year concession to invest in design, build, operate and to maintain around 6 utility systems to serve 30,00 students in the Norman campus. In Nigeria, there are few examples of private participation in building or maintaining higher education institutions. University of Awka (NAU) in Anambra state, which is a PHEIs has partnered with the private sector to provide some infrastructures, as has Fountain University Oshogbo, which is privately owned. Some other higher institutions have also shown interest in partnering with the private sector (ICRC, 2014).

### **3.10 Difficulties Faced by the Private Sector during Higher Education Infrastructure Development**

Basically, all the challenges faced by PPP in the country generally are also being faced by PPP in education; however, there are some challenges that are specific to PPP in education. Thomas and Thomas-Olufuwa (2013) concluded that the reasons why PPP is not evident in HE contexts in Nigeria include the lack of a specific format laid down by the government through which the private and the public sectors should partner, decline in dialogues between the institutions and the private sector, and inadequate marketing on the part of the institutions. They therefore recommended that PPP in HE can be improved by creating a conducive environment and by developing a robust legal framework, creating awareness and sensitising the public institutions. In addition, Amobi (2013) concluded that the lack of a financial model to enable proper assessments of affordability and value for money is the reason why there is poor participation of the private sector in the procurement of higher education infrastructure.

Many researchers have reported that the private sector is not keen to invest in projects that cannot yield returns commensurate with the level of risk, hence the lack of interest in social infrastructure such as HE infrastructure when compared with other sectors of the economy (Loo, 2002). Therefore, there is a need for the Nigerian government to address the issues of profit and risk in order to achieve success in HE PPP projects.

### **3.11 Nigerian Public Private Partnership Framework**

The information gathered from the Infrastructure Concession Regulatory Commission (ICRC), the organisation in charge of all PPP projects in Nigeria, reveals that there is currently no Framework/Model specifically developed for the procurement of HE infrastructure Projects in Nigeria, although there is a framework for the implementation of PPP projects in general. Moreover, according to the available literature, even though

there is an existing framework, PPP projects in Nigeria still face diverse, challenges, because of inappropriate profit-sharing/ financing formulae and integrity and governance issues.

### ***3.11.1 Project Development***

#### **Inception stage**

This is the stage where the project is conceptualised by the supervising Ministry, Department or Agency (MDA) or any government parastatal. It could also be initiated by the private sector; this is usually referred to as an unsolicited proposal, this should normally follow a competitive process, but this is usually not the case, as result of corruption and inappropriate political involvement.

The concept of the project is developed at this stage and then approved by the National Planning Commission (NPC); upon approval, it would thereafter be included in the 15-year master plan of the Federal Government.

One of the challenges currently faced by PPP projects in Nigeria is usually because of poor planning at this stage. The stakeholders are not normally carried along from the inception of the project, at this stage; however, if the project is to be successful, the stakeholders of the project should be determined and properly consulted. An example is the Lekki-Epe road concession by the Lagos state of Nigeria, the stakeholders were not carried along from the inception stage and after the completion of the project, they took the government to court, refusing to pay tolls.

#### **Project planning**

At this stage, officials are appointed by the MDA to form the project development team, who are given the responsibilities of the initial assessment, project identification, preparation, and appraisal; they are also responsible for securing approval for the outline business case. Figure 3.1 shows the scheduled tasks of the project development team at different stages of the project.

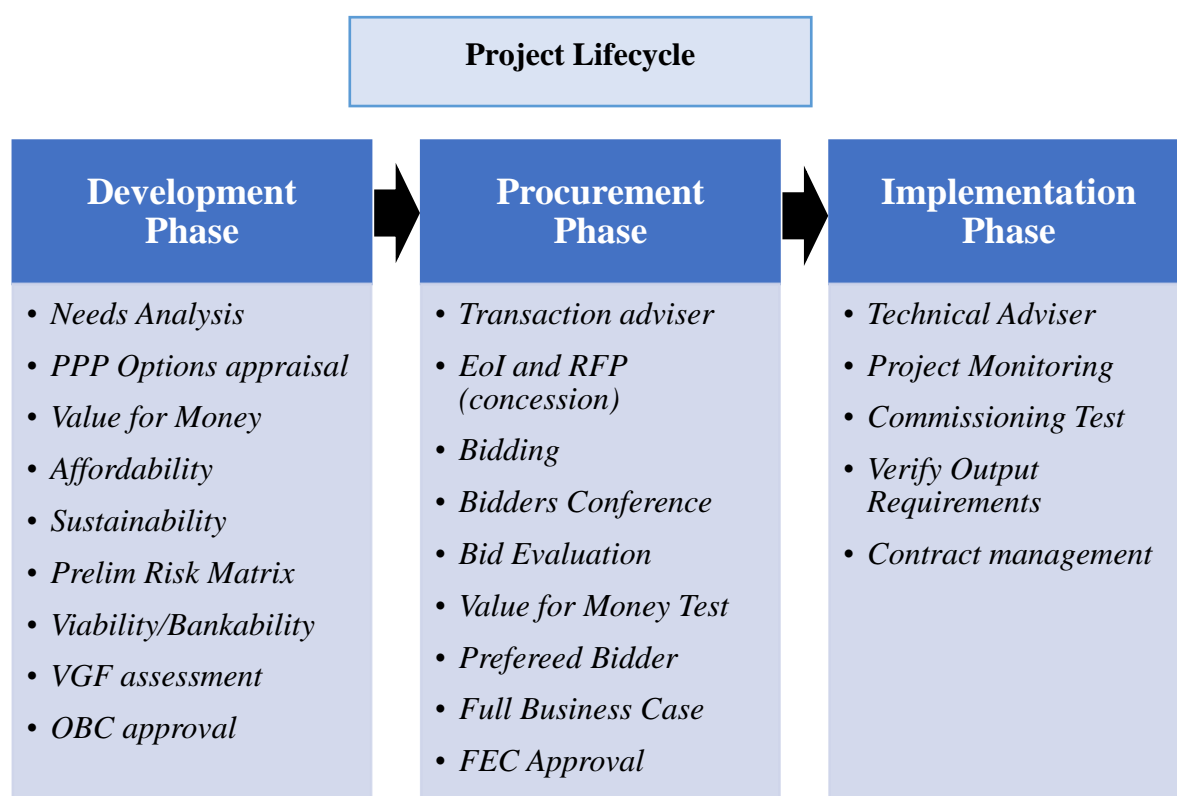


Figure 3.1: Project Development Team Tasks

Source: ICRC PPP Manual for Nigeria

### Preparation of Outline Business Case

A pre-feasibility analysis is carried out to evaluate the need and cost benefits, and the best possible procurement route for the project is determined in order to be sure that Value for Money would be achieved. The risk associated with the project is also analysed, and the affordability of the project is determined, while the best mitigation measures to be taken in case of any dispute are also determined and other analyses are carried out. This is supposed to be a very critical stage but there are usually weaknesses in the preparation of the project's analysis. This is because of the lack of experience in the PPP process and its administration. This stage requires expertise in the preparation of several documents, but because PPP is still very new in Nigeria, there are few experts in this area.

Other challenges currently faced by PPP projects in Nigeria include the choice of the wrong procurement routes for projects, as well as the wrong partners being engaged in the delivery of the projects; this also boils down to the fact that expert advice is not sought, and partners are engaged based not on experience and capability but on nomination by political leaders.



### ***3.11.2 Project Procurement***

#### Pre-qualification of Bidders

The project is advertised for bidders to express interest. These bidders submit their expression of interest, in which they will submit all their credentials and information to establish their expertise and financial resources; they should generally show their ability to carry out the project successfully. An Independent Tender Evaluation Committee is constituted by the Project Team; however, despite this, there is usually political involvement. Sometimes, the bidding is carried out for the sake of formality, but the preferred bidder is already known, unofficially. The tender evaluation committee then selects pre-qualified bidders upon the submission of expression of interest.

#### Preparation of Bid Documents

The bidding documents are prepared and are subsequently picked up by the pre-qualified bidders.

#### Selection of preferred bidder

At the stage, all bidding documents are returned by the pre-qualified bidders, the preferred bidder is selected using pre-determined criteria, and negotiation is carried out. The full business case is then carried out and the contract is awarded to the selected bidder.

### ***3.11.3 Project Implementation***

#### Project Operation

At this stage of the project, the MDA or parastatal would then take over the monitoring of the project from the Project Development Team. This is the stage where the construction commences. The MDA would then appoint independent engineers, who have the responsibility of making sure that the construction work conforms with the contract agreement; if not, they would inform the MDA and further action would be taken.

Inconsistencies in government policies affect the outcome of the projects, if the government changes, some policies are changed as well. The succession of different governments with different agendas is one of the reasons why the private sector is reluctant to invest in Nigeria.

### ***3.11.4 Project Maturity***

#### Exit and transfer

At this stage, the project is completed, and the contract agreement is naturally terminated. The PPP Company withdraws from the project and the asset is taken over by the MDA. The operation of the facility then begins. Figure 3.2 shows the Nigeria Federal Government's PPP project lifecycle. This PPP project lifecycle is generic for all PPP projects, however, it might not be suitable for all PPP projects, as all projects are not the same.

### **3.12 Nigeria's Public-Private Partnership Institutional Framework**

According to the ICRC, the Nigerian PPP process involves different government entities; this is to allow for checks and balances in the system. However, to ensure checks and balances, the staff of the organisations must be committed, but this is not the case. Most Nigerian government workers are not committed to their work, as required; negligence of duty is the order of the day and therefore there is not enough due diligence when it comes to government projects. Figure 3.3 is the Nigerian Institutional Framework, which shows the responsibilities of different agencies/organisations during the process of a PPP project.

The government agencies involved in the implementation of PPP projects which make up the Institutional Framework are:

- Infrastructure Regulatory Commission (ICRC)
- PPP Resource centre
- National Planning Commission (NPC)
- Ministries, Departments and Agencies (MDA)
- Federal Ministry of Finance (MoF)
- Debt Management Office (DMO)
- Bureau of Public Procurement (BPP)
- Bureau of Public Enterprises (BPE)

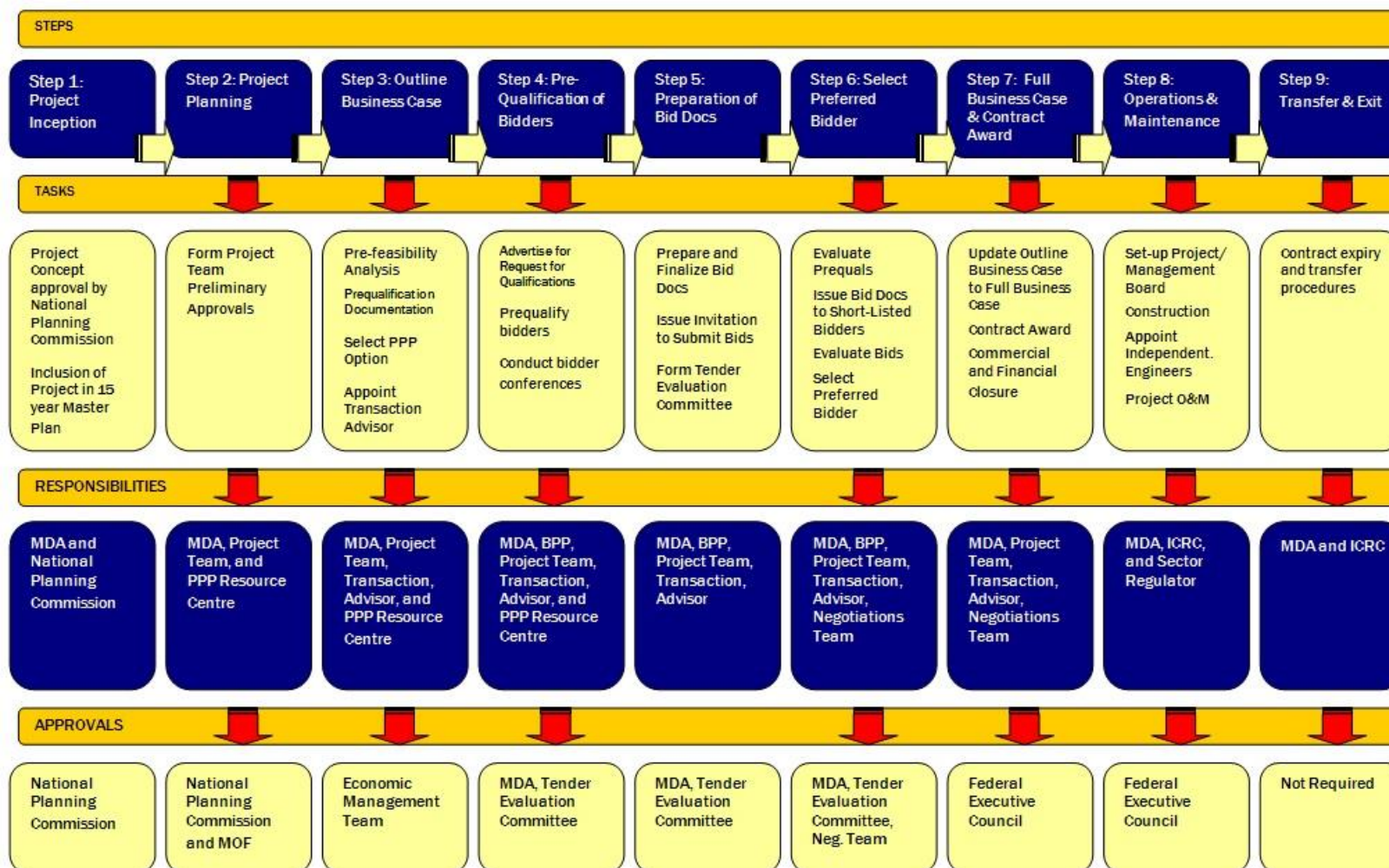


Figure 3.2: Nigeria PPP Project Lifecycle (Federal Projects)

Source: ICRC PPP Manual for Nigeria

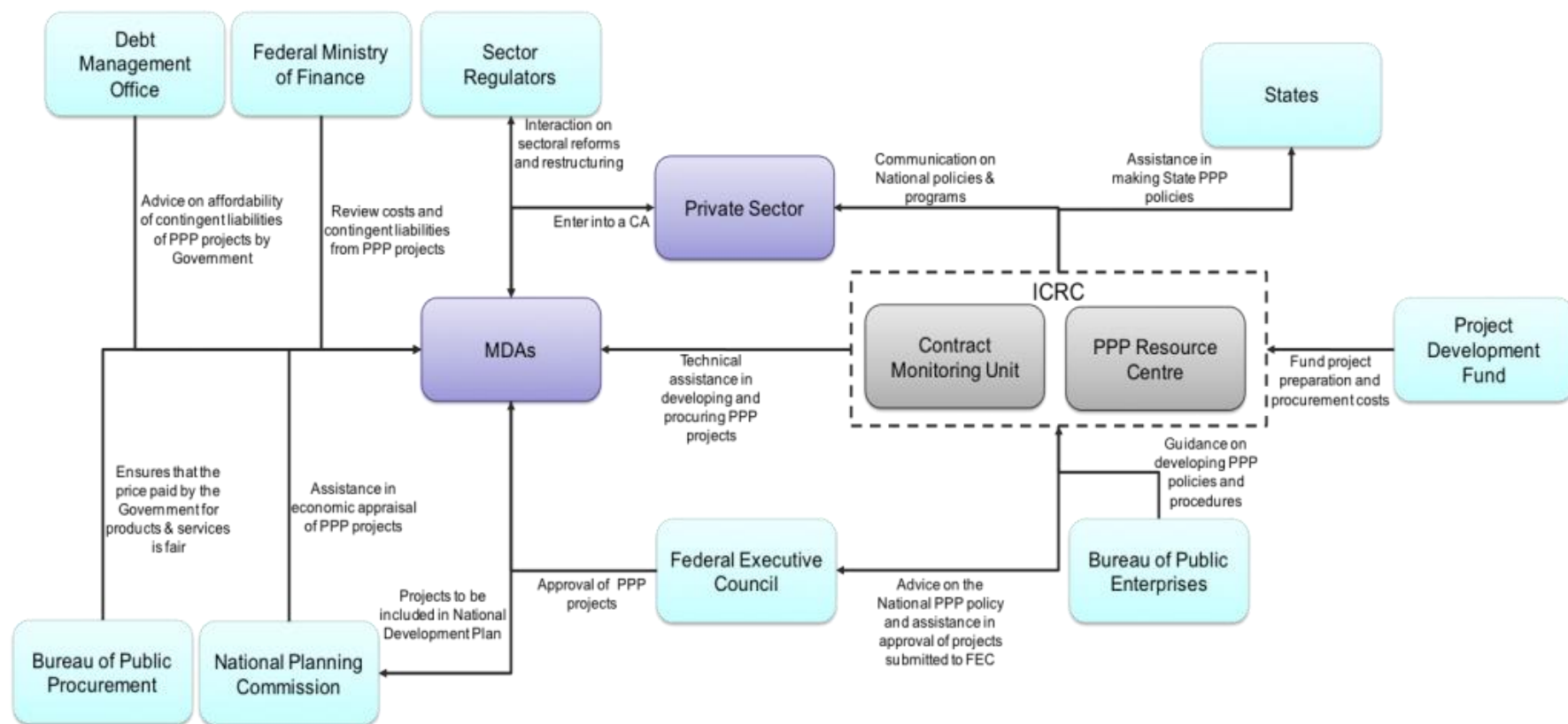


Figure 3.3: Nigeria PPP Institutional Framework  
Source: ICRC PPP Manual for Nigeria

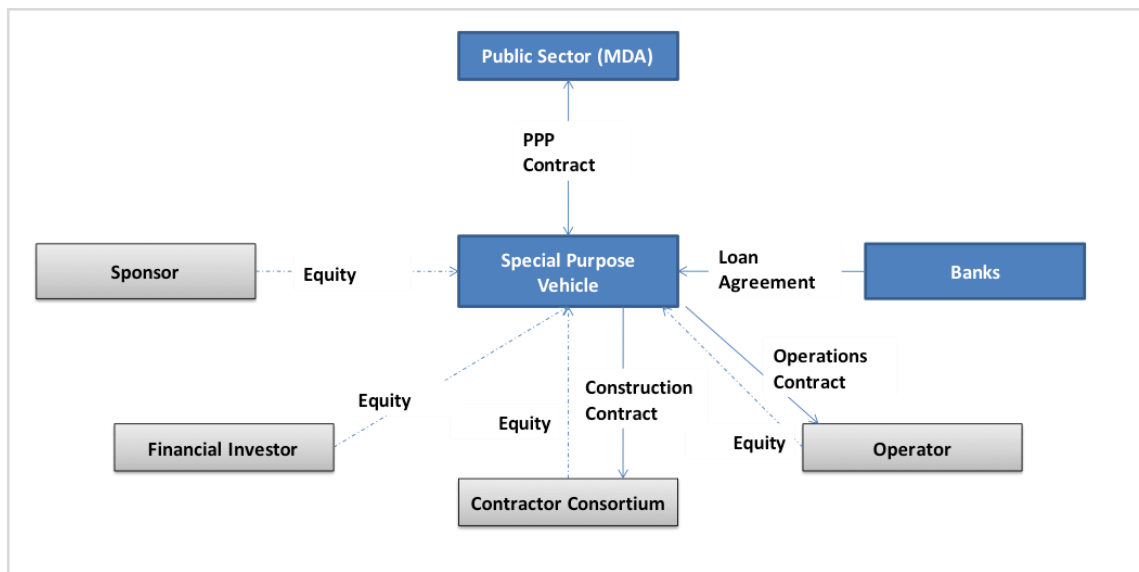


Figure 3.4: Nigerian Project Financing Structure

Source: ICRC PPP Manual for Nigeria

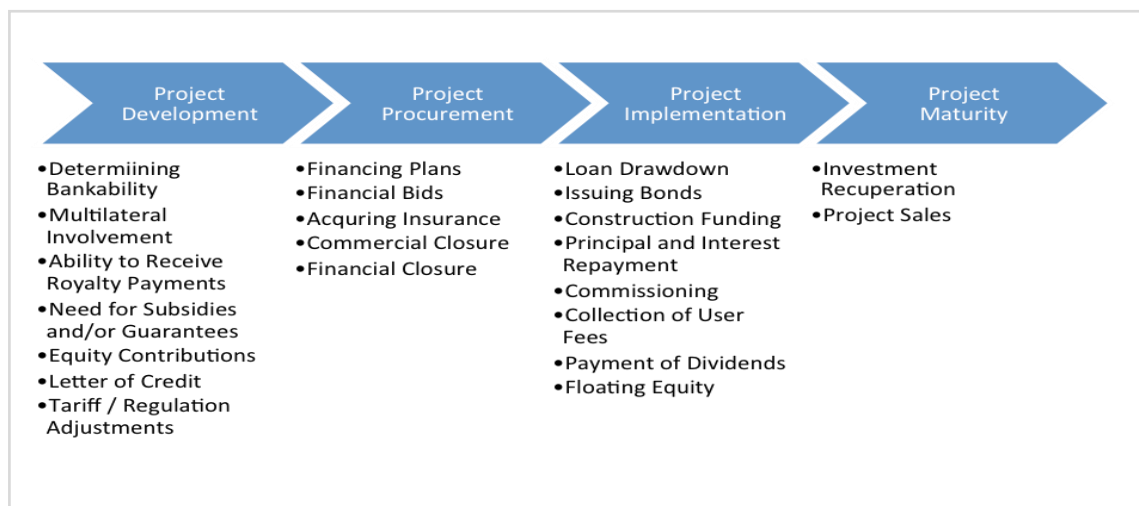


Figure 3.5: Nigerian Key Financial Milestones

Source: ICRC PPP Manual for Nigeria

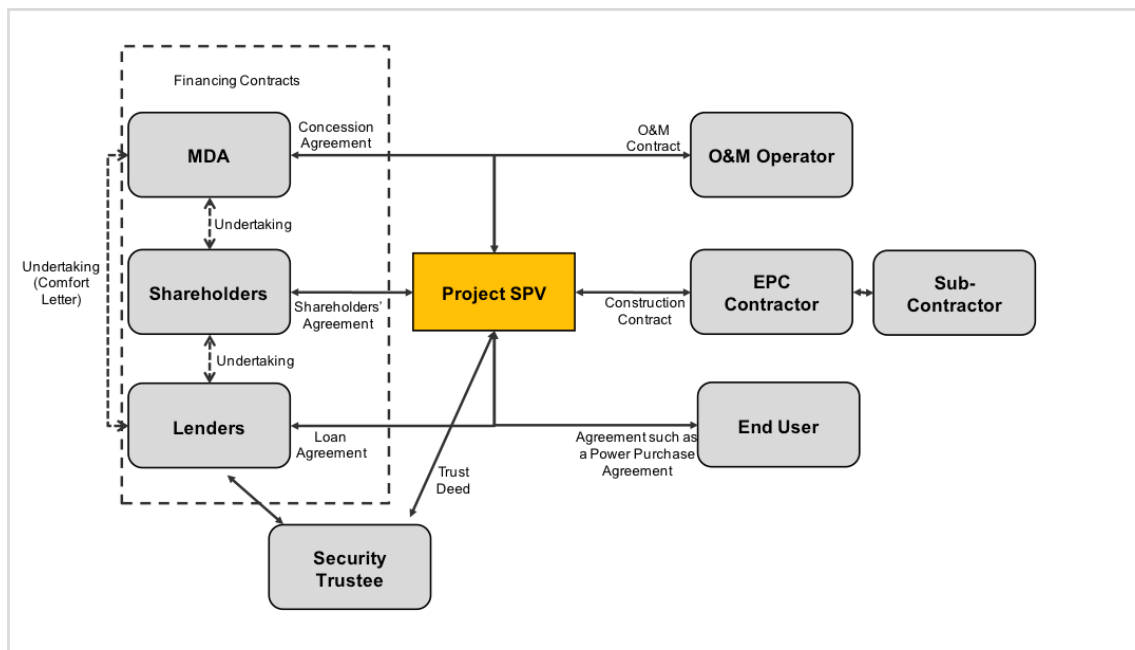


Figure 3.6: Nigerian PPP Project Agreement Structure

Source: ICRC PPP Manual for Nigeria

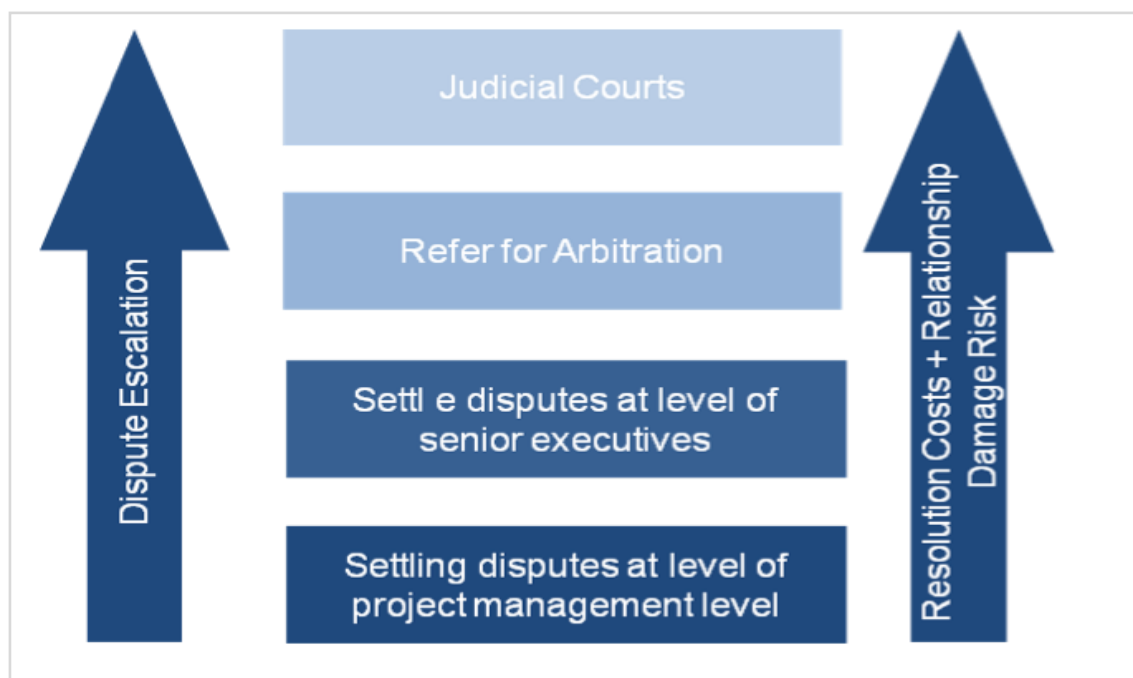


Figure 3.7: Nigerian PPP Dispute Resolution Escalation

Source: ICRC PPP Manual for Nigeria

### 3.13 Chapter Findings and Summary

This chapter has presented the concepts of PPP, and application of PPP in Nigeria HE infrastructure sector. PPP processes in three developed countries; Canada, UK and the USA were also analysed in this chapter. The chapter further discussed the Nigerian PPP Framework and the opportunities that abound for PPP in the HE infrastructure sector. The chapter also identified a need to develop a Framework/Model specifically for social infrastructures especially in the HE infrastructure sector.

The followings are the issues and required actions evident in the findings:

- i. PPP currently exists in Nigeria, but it is not prominent in HE infrastructure development, although a few student residences have been constructed using the Build Operate Transfer (BOT) Model in some of Nigerian higher institutions.

*There is therefore, a need to improve private sector participation in HE infrastructure development in PHEIs in Nigeria, especially in procuring academic infrastructures.*

- ii. There is an existing Framework which is designed for all PPP projects, but none is specifically designed for the procurement of educational infrastructures and services.

*Social infrastructures are not like economic infrastructures in which direct return on investment is expected; hence the need to develop a Framework/Model specifically for Higher Education PPP projects.*

Having identified the need to develop a viable Model for the procurement of HE infrastructure through PPP which is the aim of the research, it is then important to determine the methods by which the research data will be collected and analysed, hence the need for the next chapter which discusses the methodological approach of the research.

## Chapter 4: RESEARCH METHODOLOGY

### 4.1 Introduction

To achieve the aim and objectives of this research which were set out in Chapter One of this thesis, the methodological approach by which they will be achieved needs to be defined. Consequently, the research approach used to conduct this study, the philosophical worldview that inspires the methodology, and the methods by which the data were collected and analysed are discussed in this chapter.

### 4.2 Research Design

The research approach is the strategic procedure adopted to carry out a research study (Creswell, 2014), which includes the philosophical assumptions that inspire the style of the research, the method of collecting, analysing as well as interpreting the required data. In general, it entails the research design (the outline of how data will be collected and analysed) and the research method (the procedures which to be adopted to collect, analyse and interpret data for the research) (Bryman, 2012, Creswell, 2014). The research approach to be adopted is basically informed by the research question to be answered or problem to be solved (Crotty, 1998, Creswell, 2014), in this case, the need to understand the real-life context of the problem of PPP in the Nigeria HE infrastructure sector which will, in turn help, the researcher in the development of the proposed model.

There are basically three types of research approaches (Bryman, 2012, Creswell, 2014) namely, quantitative, qualitative, and mixed method. The mixed method combines both qualitative and quantitative methods in the research process (Bryman, 2012, Creswell, 2014). The quantitative research method uses deductive reasoning (Creswell, 2014) based on theories of natural science and positivism (Bryman and Bell, 2007) and the belief that social reality is objective and external (Bryman, 2012). On the other hand, qualitative research methods use inductive reasoning, do not support natural science and positivism (Bryman, 2012) and are based on the view that social research is subjective and continually changing (Bryman and Bell, 2007). Furthermore, qualitative research endeavours to understand people's opinions about the world (Fellows and Liu, 2003).



### **4.3 Research Philosophy**

The philosophical position of worldview that inspires a researcher to employ a particular research style is the research methodology (Creswell, 2014); this determines the research design; epistemology; theory of knowledge and ontology; theory of reality (Crotty, 1998, Creswell, 2014). The researcher, therefore, needs to justify the choice of style.

In the philosophical world view, ontology is the theory of reality, the fundamental nature of social (or physical) entities. In social science, it could either take the view of realism/objectivism as reality being independent of social actors or social constructivism, in which reality is dependent on the perceptions and interaction of social actors (Bryman, 2012). Objectivism emphasises that social occurrences are independent of social actors (Bryman and Bell, 2007, Bryman, 2012) while constructivism is the opposite which suggests that social entities and their meaning are not independent of social actors.

On the other hand, epistemological considerations, according to Bryman (2012), are particularly about knowledge: what it is possible to know and what counts as acceptable knowledge. It is involved in finding an answer to the question whether the social world can/should be studied the same way as natural science is studied (Bryman, 2012, Lapan et al., 2012). This takes the form of positivism (natural science's epistemological position) or interpretivism, which is opposite of positivism (Bryman, 2012).

This research stands on a constructivist ontological point of view, where social entities and their meaning are not independent of social actors. However, it stands on the positivist epistemological idea, in which the construction, and testing of a solution are based on the interaction between people and the world around them (Oyegoke, 2011).

### **4.4 Research Approach**

Having examined various schools of thought on the choice of research approach for this research, it is therefore essential to choose an approach which will answer the research questions set in this research. There are various debates on the appropriate research approach in construction management, although it is acknowledged that construction management has some common ground with social sciences and the approach to be adopted strongly depends on the research questions or the problems to be solved (Wing et al., 1998). In this case, the research seeks to improve private sector participation in the

delivery of higher education Infrastructure in Nigeria by developing a model for the successful procurement of higher education infrastructure.

This study seeks to proffer a solution to a real-life problem; therefore, a constructivist research approach was deemed appropriate for the study. This research adopted a Constructive Research Approach (CRA); in which both qualitative and quantitative strands of research were triangulated. After a comprehensive literature review, research data were collected in three stages: the first stage is an exploratory survey conducted to corroborate the findings of the literature review, the second stage is the case studies of PPP projects in the Higher Education infrastructure sector, which helped in gaining an in-depth understanding of the phenomenon under investigation as it relates to the Nigerian context. The third stage is the experts' evaluation of the developed model; which helped to determine its suitability for the purpose for which it was designed.

A qualitative research methodology was adopted for the first stage of the data collection, via semi-structured interviews with stakeholders in the field. A mixed-method approach was adopted for the second stage of data collection (case study); where both qualitative and quantitative data were collected via semi-structured interviews and self-completion questionnaires. At the third stage, quantitative data were collected via self-completion questionnaires.

#### ***4.4.1 Constructive Research Approach***

The Constructive Research Approach produces solutions for an identified real-life problem (Kasanen et al., 1993, Oyegoke, 2011); in this case, the problem is the need to transform the infrastructures of Nigerian PHEIs from their current decayed state to an acceptable standard. The solution could be represented in formats such as a constructed model or plans (Kasanen et al., 1993). In the case of this research, the solution is a Model that is developed to improve the participation of the private sector in the delivery of infrastructures for PHEIs in Nigeria. The research question to be answered in a constructivist research study, could either be driven by a phenomenon, a theory or both, and this approach is associated with either rationalist or naturalistic paradigms (Oyegoke, 2011). According to Oyegoke (2011) the constructed solution would be put into use in order to ascertain its suitability. This was not possible in the present study, the constructed solution (model) could not be put into use because of the research time-frame and the fact

that construction projects are long term projects; however, the Model was evaluated by experts and validated theoretically and the result of the evaluation formed part of this research.

Kasanen et al. (1993) and Oyegoke (2011) identified six stages in the constructive research process which are:

- (1) Find a practical relevant problem which also has a research potential.*
- (2) Obtain a general and comprehensive understanding of the topic*
- (3) Innovate - construction a solution idea*
- (4) Demonstrate that the solution works.*
- (5) Show the theoretical connections and the research contribution of the solution concept*
- (6) Examine the scope of applicability of the solution.*

(Kasanen et al, 1993 page 246) and (Oyegoke, 2011 page 580 to 587).

The above named six stages are mapped out in Figure 4.1, and Figure 4.2 shows the elements of constructive research as mapped by Kasanen et al. (1993). This approach has been used in construction project management research to develop a *Conceptual Framework for Defining Customisation Strategies in the House-Building Sector* (Rocha, 2011); it was also used to develop a *Specialist Task Organisation (STO) Procurement Approach* (Oyegoke, 2007).

The introduction of the constructive research approach was born out of the need for an alternative research approach in construction project management, which would allow academics to contribute to real-life practice and be able to solve real-life problems (AlSehaimi et al., 2013). This research approach is expected to take academics away from being observers and evaluators alone but also to become problem solvers (AlSehaimi et al., 2013) hence the introduction of constructive research approach.

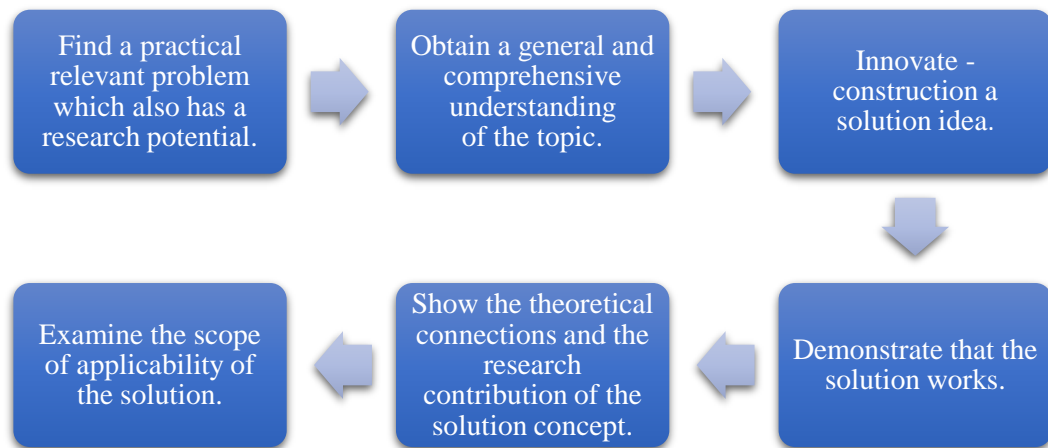


Figure 4.1: The Six Stages of the Constructive Research Approach (CRA)

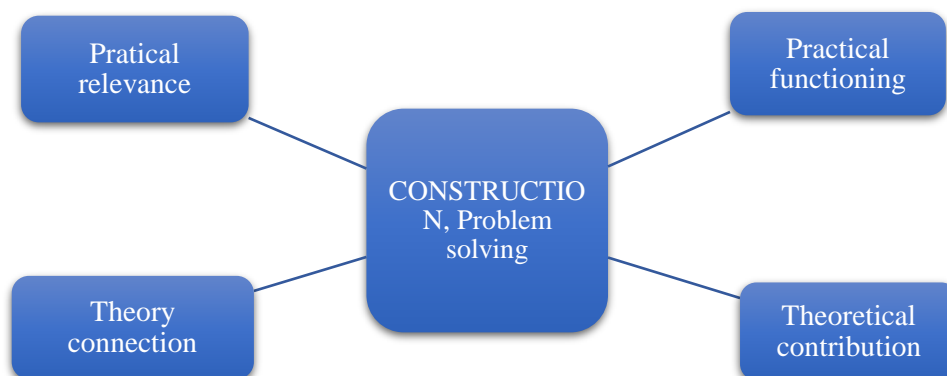


Figure 4.2: Elements of Constructive Research

Source: Adapted from Kasanen et al. (1993); *The Constructive Approach in Management Accounting Research*.

## 4.5 Research Methods

Having identified constructive research as the appropriate approach for this study, it is important to further identify the methods by which the data will be collected. Thus, Table 4.1 shows the research strategy and methods adopted for this study, while Table 4.2 shows the research methods in relation to the research objectives to be achieved.

Table 4.1: Research Approach, Strategy, and Methods

Research Approach	Research Strategies	Research Methods
Constructive Research Approach	Qualitative	<ol style="list-style-type: none"> <li>1. <b>Systematic literature review</b>, analysis of laws, regulations, policy documents.</li> <li>2. Exploratory Survey; <b>Semi-Structured Interviews</b> with: <ul style="list-style-type: none"> <li>▪ The management staff of PHEIs in Nigeria.</li> <li>▪ The staff of the PPP regulatory body in Nigeria (Infrastructure Concession Regulatory Commission ICRC).</li> </ul> </li> </ol>
	Qualitative and Quantitative	<ol style="list-style-type: none"> <li>3. Case studies of PPP Higher Education Infrastructure projects; <ul style="list-style-type: none"> <li>▪ <b>Semi-Structured Interviews</b> with: <ul style="list-style-type: none"> <li>The management staff of the case study institutions.</li> <li>The staff of private sector companies involved in the case study projects.</li> </ul> </li> <li>▪ <b>Self-Completion Questionnaires</b> administered to: Staff and students of the case study Institutions.</li> </ul> </li> </ol>
	Quantitative	<ol style="list-style-type: none"> <li>4. Experts' evaluation of the developed model. <ul style="list-style-type: none"> <li>▪ <b>Self-Completion Questionnaires</b> administered to experts.</li> </ul> </li> </ol>

Table 4.2: Research Data Collection &amp; Analysis

The aim of the Research	Objectives of the Research	Survey Methods	Data Collection Methods	Methods of Analysis
To develop a model for Public-Private Partnership (PPP) projects in Nigeria's Higher Education (HE) infrastructure sector	To investigate infrastructure needs in Nigerian Public Higher Education institutions in order to ascertain the level of inadequacy.	<ul style="list-style-type: none"> <li>Systematic Literature Review</li> <li>Exploratory Survey.</li> </ul>	<ul style="list-style-type: none"> <li>Literature review.</li> <li>Semi-structured Interview.</li> </ul>	<ul style="list-style-type: none"> <li>Qualitative data were transcribed and transferred into NVIVO and analysed using thematic framework analysis method.</li> <li>Quantitative data was input into SPSS and both descriptive and statistical frequencies were generated from the data.</li> </ul>
	To assess the use of PPP in the delivery of Higher Education infrastructure in Nigeria in order to determine the extent of its application.	<ul style="list-style-type: none"> <li>Systematic Literature Review.</li> <li>Exploratory Survey.</li> </ul>	<ul style="list-style-type: none"> <li>Literature review.</li> <li>Semi-structured Interview (exploratory survey).</li> </ul>	
	To identify and highlight the challenges associated with the traditional method of procuring Higher Education infrastructure in order to proffer solutions to the identified issues.	<ul style="list-style-type: none"> <li>Systematic Literature Review.</li> <li>Exploratory Survey.</li> </ul>	<ul style="list-style-type: none"> <li>Literature review.</li> <li>Semi-structured Interview.</li> </ul>	
	To analysis PPP processes applied to higher education infrastructure and services in three developed countries in order to identify opportunities and applicable attributes that can help improve PPP initiatives in Nigeria.	<ul style="list-style-type: none"> <li>Systematic Literature Review.</li> </ul>	<ul style="list-style-type: none"> <li>Literature review.</li> </ul>	
	To identify and highlight the challenges associated with PPP in the Higher Education infrastructure sector in order to proffer solutions to the identified issues.	<ul style="list-style-type: none"> <li>Systematic Literature Review.</li> <li>Exploratory Survey.</li> <li>Case Study.</li> </ul>	<ul style="list-style-type: none"> <li>Literature review.</li> <li>Semi-structured Interview.</li> <li>Questionnaires</li> </ul>	

As shown in table 4.2, qualitative Data were collected via a literature review, analysis of laws, regulations and policy documents, semi-structured interviews with management staff of PHEIs in Nigeria and staff of the PPP regulatory body in Nigeria (Infrastructure Concession Regulatory Commission ICRC). Quantitative data was collected via self-completion questionnaires. In the preliminary phase, a systematic literature review was conducted; the first phase of data collection (explorative survey) was basically qualitative

in nature via semi-structured interviews, while in the second phase of data collection (Case Study) the methods were mixed, using both qualitative and quantitative data; semi-structured interviews and self-completion questionnaires.

#### 4.6 Research Data Collections

Data collection and analysis for this research is divided into four stages. Figure 4.3 shows the different stages, the research strategy, the survey instruments and research methods employed at each stage, together with the methods by which all the data at each stage were analysed. These stages are further explained in detail in this chapter.

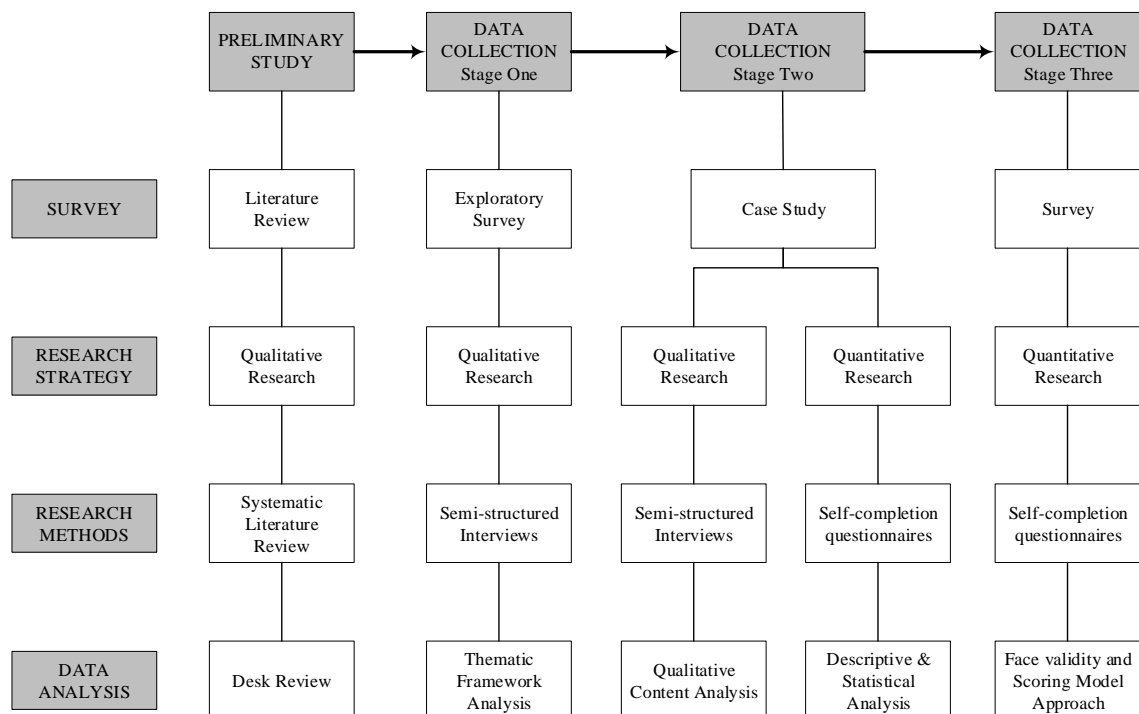


Figure 4.3: Research Data Collection and Analysis

#### 4.7 Preliminary Study: Literature Review

The purpose of a literature review is to provide the researcher with comprehensive knowledge and proper understanding of the research topic (Creswell, 2014). Thus, it is not just a summary of the literature (Bryman, 2012), but a critical review of what has been read (Bryman, 2012). It also assists in identifying the appropriate research design and mapping out the key themes within the field of study (Creswell, 2014). A broad range of literature within the field of study was examined while carrying out this study. Systematic

reviews of PPP and the procurement of Higher Education infrastructure in SSA and Nigeria were carried out.

A systematic literature review was conducted to identify the current situation of PHEI in Nigeria. This was done to help determine what is already known, the concepts and theories that have already been applied to this topic, the debates on the topic as well as the key contributors to the research in this field. Figure 4.4 is the literature map for the research, it shows the steps by which, the research was reviewed. The key relevant concepts were also identified and ordered in such a way that they do not only provide a structure for the literature review itself but also assisted in the formulation of a set of questions to guide the semi-structured interviews with professionals in the field. The literature review undertaken in this research has been reported in Chapters Two and Three of this thesis. Furthermore, a taxonomy of the literature findings were developed and presented as Appendix 4.1 in this thesis. Moreover, the literature review was a continuous process which continued until the end of the study.



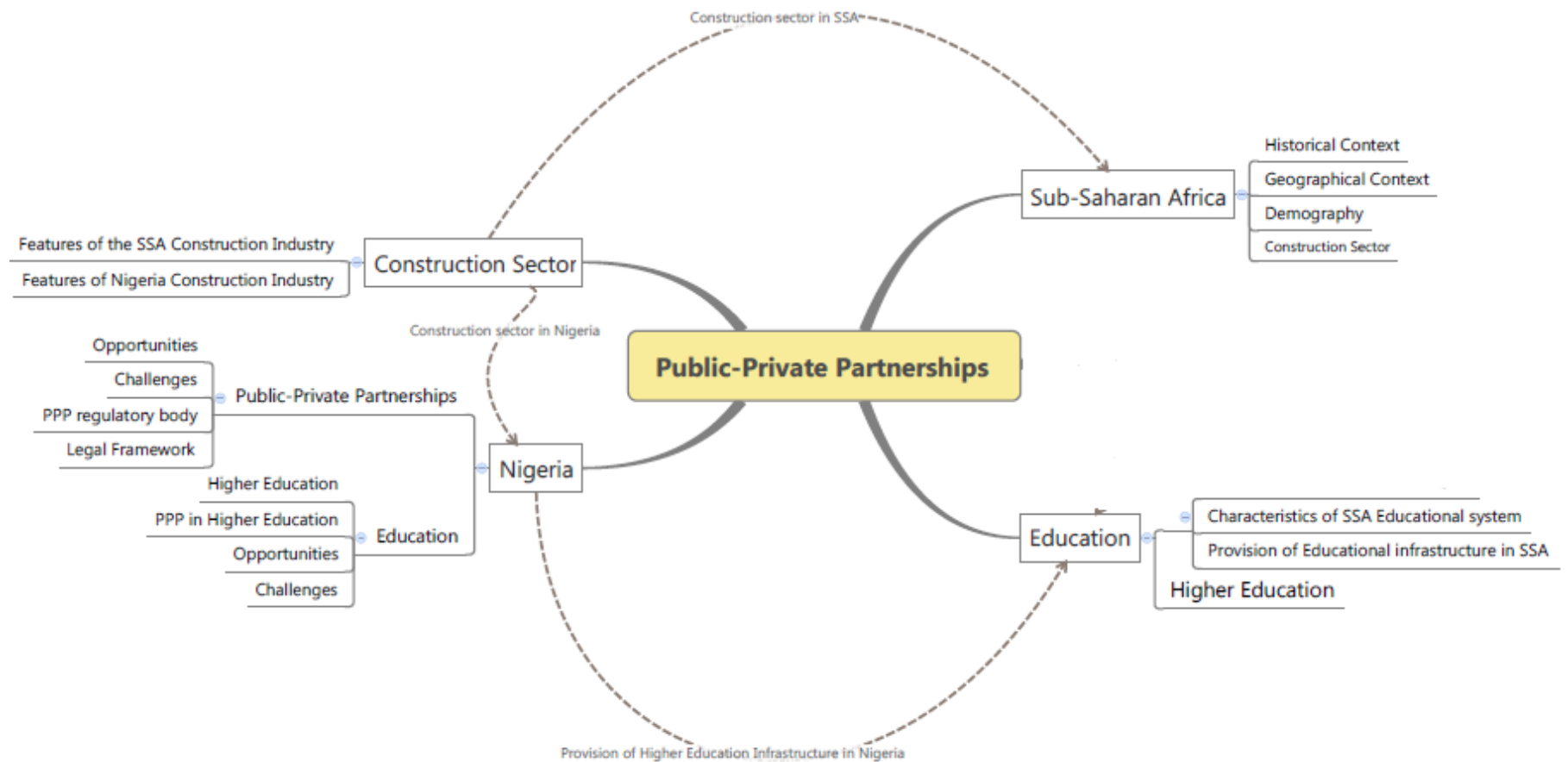


Figure 4.4: Literature Map

#### **4.8 Data Collection Stage One: Exploratory Survey**

An exploratory survey was conducted to corroborate the findings of the literature review; the exploratory survey data collected, and the analysis are presented in Chapter Five.

##### ***4.8.1 Sample Recruitment for the Exploratory Survey***

Stakeholders of the HE infrastructure sector and PPP in Nigeria were identified through the literature review that was previously conducted. The participants were recruited purposively using the research objectives as the basis for recruiting them. Purposive sampling is referred to as a *non-probability* form of sampling in which research participants are not sampled randomly but are sampled purposefully so that the participants recruited are relevant to the research questions to be answered (Bryman, 2012). Table 4.3 shows a list of the respondents. In total, seven participants were interviewed, this number is deemed adequate by some previous construction project management researches; because this is an exploratory survey, which is a type of pilot study that preceded the main data collection.

Table 4.3: Respondents of the Exploratory Survey

No	Organisation	Department	Designation	What they represent	Experience	Relevance of experience
Public Higher Institutions						
1.	University of Lagos	Department of Works and Physical Planning.	Director	They are in charge of the procurement process of the institutions.	Experienced in the procurement of Higher Education infrastructure through traditional (government funding) procurement route as well as PPP.	They were able to give their experiences on the process of procuring Higher Education infrastructure through both routes, and also identified the difficulties they currently face.
2.	Obafemi Awolowo University, Ile-Ife	Physical Planning and Development Unit.	Director			
3.	University of Abuja	Department of Physical development	Director			
4.	Obafemi Awolowo University, Ile Ife	Project Implementation Committee	Chairman			
Federal Government Agencies						
5.	Federal Ministry of Education (FME)	Department of Tertiary Education	Director	FME is a government parastatal in charge of the activities of all levels of Education which includes all higher institutions in Nigeria.	All proposed projects are channelled through FME.  Experienced in the general procurement process.	They gave details of the procurement process, as well as the challenges currently faced.
Researchers						
6.	Researcher/ Lecturer	Heriot-Watt University	Lecturer (Professor of Construction Management)	Researchers who are versatile in the field of infrastructure provision through both routes.	They have carried out a series of research studies in the field of procurement (both traditional and PPP routes).	Their experience in the research field helped in the understanding of the current situation, and the existing and gap in knowledge
7.	Researcher/ Lecturer	Obafemi Awolowo University	Lecturer (PhD Researcher)			

#### **4.8.2 Exploratory Survey: Data Collection**

The exploratory survey research data was collected via semi-structured interviews, which allowed opportunities for flexible open-ended answers. The interviews took between 25 and 80 minutes; all the interviews were conducted between May and August 2015. In total, seven stakeholders were interviewed, four of whom were interviewed via telephone, one via Skype, one face to face and one preferred that the questions should be e-mailed, which were answered and sent back via e-mail. All the participants were over 40 years of age, with over ten years' experience and held at least a degree, which qualified them to be considered to have enough knowledge in this area of research. Prior to the interviews, introductory e-mails were sent to the participants with a brief narration of the research and further followed up with telephone calls. The semi-structured interview has already been discussed in section 4.6.1 of this thesis. The introductory email is included in this thesis as Appendix 4.2, and Appendix 4.3 to 4.6 are the interview questions.

#### **4.8.3 Exploratory Survey: Data Analysis**

Different approaches were considered for the analysis of the research data collected during the exploratory survey, one of which is qualitative content analysis. According to (Bryman, 2012), content analysis is an approach used in quantifying the content of a document and text. However, in this case, the study is not aimed at quantifying the content of the interview data rather, there is a need to understand the content of the data collected, hence qualitative content analysis was deemed not suitable for this exploratory study. Another approach considered for analysing the qualitative data collected through semi-structured interviews is thematic framework analysis. Thematic framework analysis is *a matrix-based method of ordering and synthesising data* (Ritchie et al., 2013), this approach was developed on the basis of conducting applied qualitative research at the National Centre for Social Research in the United Kingdom (Ritchie and Lewis, 2003, Bryman, 2012). The data in this study was analysed in accordance with the five stages of thematic framework analysis: *familiarisation, identifying a thematic framework, indexing and sorting, charting and mapping/interpretation*.

#### 4.9 Thematic framework Analysis

The qualitative data collected via semi-structured interviews were analysed according to the five stages of thematic framework analysis identified by Ritchie et al. (2013), these stages are shown in Figure 4.6.



Figure 4.5: Stages of Thematic Framework Analysis

##### ***I. Familiarisation***

The data collected through the semi-structured interviews were transcribed and transferred into NVivo, which is a computer-aided qualitative data analysis software (CAQDAS) designed to help researchers in the analysis of qualitative data (Bryman, 2012). All the interview responses were then read through again and again to obtain a grasp of the full content of the data. The idea behind familiarisation is for the researcher to become conversant with the research data before the process of sifting and sorting (Ritchie and Lewis, 2003, Ritchie et al., 2013).

##### ***II. Identifying a Thematic Framework***

In the process of familiarisation, which is inductive in nature, a set of themes was identified based on the content of the research data. Other themes were also identified using the deductive approach based on the research questions and objectives. Therefore, the themes identified for the analysis are both deductive and inductive in nature, which allowed for the development of themes both from the research questions and from the data gathered from the field. The themes, which represent the issues raised by the respondents and the those identified from the research questions, formed the thematic framework within which the research data could be sorted, as posited by Ritchie and Lewis (2003).

##### ***III. Indexing and Sorting***

The identified themes were keyed into NVivo as Nodes, followed by sorting and coding the research data into nodes (themes) which they relate to. The process of doing this is referred to in framework analysis as indexing (Ritchie et al., 2013).

The codes which are relevant to the research questions were organised into thematic categories. Table 5.3 shows the identified themes; the themes were then coded into nodes in NVivo.

#### ***IV. Charting***

After the process of sorting and indexing the research data into different nodes in NVivo, a matrix was created for each of the themes by charting the research data for each case and code within the themes and hierarchical arrangements as well as into sub-themes; this forms the thematic framework.

#### ***V. Mapping and interpretation***

At this stage of the work, coded data were reviewed to be sure that they were properly coded and to see if there were any others left out. The connections between the codes were also reviewed and some sub-themes were also identified. Different themes were then coded to the corresponding topic.

### **4.10 Data Collection Phase Two: Case Study**

The third stage of data collection was conducted via case studies of PPP projects in three Nigerian Public Higher Education Institutions. Stake (2010) describes case study as a form of research enquiry, while Yin (2014) defines it as a research method which focuses on a real-life context. Data collected in a case study could either be primary or secondary. For this research, both primary and secondary data were collected and analysed. Case studies of three completed Higher Education infrastructure projects procured through PPP in Nigeria were conducted. These case studies provided the opportunity to investigate what was done right, what went wrong and how to proffer solutions to the challenges identified.

The case study research method was considered for this stage of the research because of the need to focus on a real-life context (Yin, 2014); thus, PPP Educational projects were used as cases. Stake (2010) describes a case study as a form of research enquiry in which the collected data could be primary or secondary, in this case, it was primary. Moreover, a case study can be exploratory, descriptive or explanatory in nature (Yin, 2014), or confirmatory (Yin, 2014). Figure 4:7 shows the replication approach for multiple -case study which was adapted for this research.

As shown in the figure, each of the cases was identified, then data for each of the case projects were collected and analysed, after which individual case reports were written, followed by cross-case analysis of the three cases.

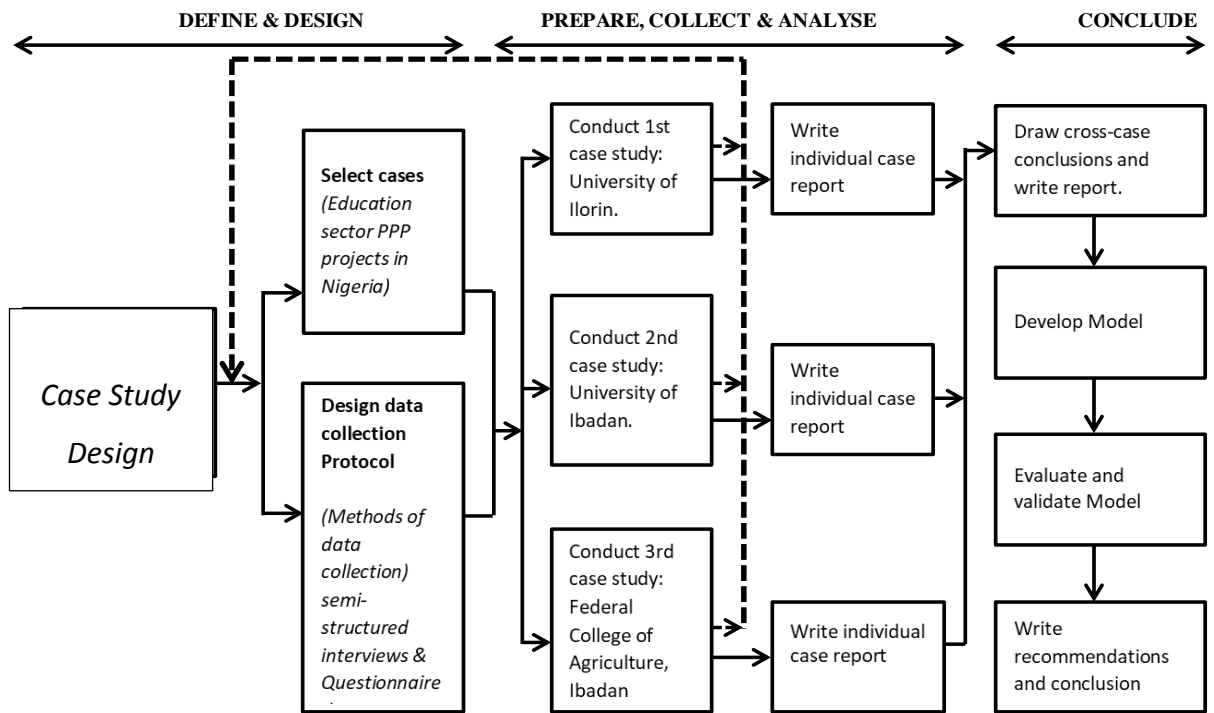


Figure 4.6: A Replication Approach to Multiple-Case Study  
Adapted from Yin (2014) *Case Study Research Design and Methods*

#### 4.10.1 Selection of Cases

To conduct a very good case study, the cases must be properly selected (Yin, 2014), the cases must represent both the phenomenon under investigation and the research problem, questions and objectives (Yin, 2014). During the exploratory survey, some PHEIs were contacted; therefore, to have a wide range of information, it was suitable to contact other institutions other than the previously contacted ones. The experience in PPP procurement method informed the selection of three PHEIs for the case studies; the University of Ibadan, University of Ilorin and the Federal College of Agriculture, Ibadan.

#### **4.10.2 Case Study: Sample Size**

Nigerian PHEIs with experience in providing HE infrastructure through PPP were identified through the literature review, exploratory study and through direct contact with the institutions. Table 6.1 shows the case study institutions and projects, it also shows the model of PPP carried out by the institutions, as well as the respondents of each of the institutions and projects. The table also shows the research instruments used in the data collection. Three case studies were deemed adequate for this stage of the research, based on previous studies conducted by other researchers. such as *Framework for Managing Risk in Privately Financed Market Projects in Nigeria* by Awodele (2012), *An Integrated Project Evaluation Tool for Public-Private Partnership Projects* by Kurniawan (2013), and *A Framework for outsourcing Facilities Management Services in Nigeria's Public Hospitals* by Ikediashi (2014). For each of these studies of PPP, three case studies were conducted.

#### **4.10.3 Case Study: Data Collection**

Case study data were collected both qualitatively and quantitatively through semi-structured interviews. Semi-structured interviews and questionnaires have already been discussed in sections 4.6.1 and 4.11.1 of this chapter respectively. Both the qualitative and the quantitative data were collected from three different PHEIs in Nigeria and conducted between the 3<sup>rd</sup> of July 2017 and 10<sup>th</sup> of September 2017. The reason for mixing methods is to extend the range of inquiry as advocated by Yin (2014), who argues that mixed method research provides a better understanding of research problems rather than using each of either of them alone. The mixed-method design adopted is a convergent design, where two sets of data were collected concurrently and analysed separately, and the results merged. This allows data to be mixed at the time of interpretation of the results.

#### **4.10.4 Case Study: Data Analysis**

Yin (2014) discussed the need to identify an analytical strategy for the analysis of case study data and identified four analytic strategies for case study analyses namely: *relying on theoretical propositions, working your data from the 'ground up', developing a case description and examining plausible rival explanations, relying on theoretical propositions'* is identified as the appropriate analytic strategy for the case study. According to Yin (2014), this analytic strategy should follow the theoretical propositions



of the research that eventually led to the case study research; it is expected that the data collection would have been shaped by the propositions.

Following the identification of the analytic strategy, Yin (2014) suggests there is a need for the researcher to identify an analytic technique for the purpose of analysing the case study data. Yin (2014) further identified five analytic techniques for case study research; *Pattern Matching*, *Explanation Building*, *Time-series Analysis*, *Logic Models* and *Cross-*

*Case Synthesis*. Consequently, because three different cases are considered, it was decided that *Cross-Case Synthesis* was the appropriate analytic technique for this case study research. Cross-Case Synthesis is specifically intended for the analysis of multiple case studies (Yin, 2014). This analytical strategy can be implemented by analysing individual cases separately and the individual findings are then further combined (Yin, 2014). Consequently, the three cases were analysed separately, using thematic framework analysis, and finally a cross-case analysis was conducted.

A technique is required to analyse individual cases before conducting a cross-case analysis. Thus, different approaches were considered for the analysis of the qualitative data from individual cases: amongst them is thematic framework analysis. Thematic framework analysis is a matrix-based method of ordering and synthesising data (Ritchie et al., 2013), which was developed based on conducting applied qualitative research at the National Centre for Social Research in the United Kingdom (Ritchie and Lewis, 2003, Bryman, 2012). The qualitative data gathered was transcribed, inputted into NVIVO and analysed using thematic framework analysis. Thematic framework analysis is discussed in detail in section 4.10 of this chapter.

#### **4.11 Data Collection Stage Three: Model Evaluation**

The developed model was evaluated by experts; this evaluation was conducted via self-completion questionnaires. To evaluate the developed PPP Model, experts from Higher Education (HE) institutions and private sector contractors were contacted to seek their opinion on the model. The first step was to send them personal emails based on the relationships that were previously established with them during the first and second stages of data collection, after the acceptance of the request to evaluate the model, The Model Evaluation Materials/Information were sent to them via email. The evaluation material

contained an introduction letter, a consent letter, a summary of the research findings/recommended solutions, the developed model, and the questionnaire.

#### **4.12 Chapter Findings and Summary**

This chapter has discussed the research approach and the methods by which the research data were collected and analysed. In this chapter, Constructive Research Approach (CRP) was presented as the approach by which the research was conducted. All the stages of data collection were also presented in this chapter, i.e. the structured literature review conducted at the preliminary stage, the exploratory survey conducted in which the data were analysed using thematic framework analysis, and the case studies conducted where replication approach of multiple case study was considered for the analysis. This chapter also discussed that the research data collection and analysis were based on a mixed-method approach where both quantitative and qualitative data were collected and analysed with the use of SPSS and NVIVO respectively.

## **Chapter 5: EXPLORATORY SURVEY**

### **Data Presentation, Analysis, and Discussion**

#### **5.1 Introduction**

This chapter presents the exploratory survey carried out to corroborate the findings of the literature review and to identify the problems and challenges associated with PPP in the HE infrastructure sector in Nigeria. The data collected during the exploratory survey are presented in this chapter together with the discussions of the findings.

#### **5.2 The aim of the Exploratory Survey**

The aim of the exploratory survey is to validate the findings of the literature review and to also explore and evaluate the challenges associated with PPP procurement process in Nigeria, especially in the HE infrastructure sector. To do this, research data were gathered qualitatively through semi-structured interviews which involved a range of stakeholders, including representatives of Higher Education Institutions, Federal Government Agencies, and Private Sector Developers. The data gathered was analysed using Thematic Framework Analysis and the results further corroborated the findings of the literature review previously conducted.

#### **5.3 Research Strategy, Data Collection, Analysis and Findings**

A qualitative research technique was considered to be appropriate for the exploratory study because the objective was to obtain data that would lead to a better understanding of the strategic issues in the HE infrastructure sector: seeing the true situation through the eyes of the stakeholders (Bryman, 2012). The data were collected through semi-structured interview, (Saunders et al. (2012) in line with other researchers' view that semi-structured interview is most suitable for an exploratory study, as it allows the opportunity to probe the participants further. The full details of the methods of data collection and analysis were presented in the methodological chapter (Chapter Three). Table 5.1 shows the research instruments used in conducting the exploratory survey.

Table 5.1: Respondents and Research Instruments

No	Organisation	Department	Designation	Research Instrument	Interview Date	Interview Duration
<b><i>Public Higher Institutions</i></b>						
1.	University of Lagos	Department of Works and Physical Planning.	Director	E-mail	Responded on 03/07/15	Not applicable
2.	Obafemi Awolowo University	Physical Planning and Development Unit.	Director	Telephone	25/05/15	55mins
3.	University of Abuja	Department of Physical development	Director	Telephone	28/05/15	35mins
4.	Obafemi Awolowo University	Project Implementation Committee	Chairman and HOD Estate Department	Telephone	18/05/15	70mins
<b><i>Federal Government Organisations</i></b>						
5.	Federal Ministry of Education (FME)	Department of Tertiary Education	Director	Telephone	19/08/15	40mins
<b><i>Private Sector (Consultant)</i></b>						
6.	BridgeUp Nig Ltd	Administration	MD/CEO	Skype	02/09/15	48mins
<b><i>Researchers</i></b>						
7.	Researcher	Heriot-Watt University	Lecturer (Professor of Construction Management)	Face to Face	04/05/15	65mins
8.	Researcher	Obafemi Awolowo University	Lecturer & (PhD Researcher)	Skype	23/05/15	80mins

To achieve the aim of this exploratory survey, an interview guide was developed to help the researcher (interviewer) with the basis for the interview questions. Figure 5.2 shows the interview guide and questions.

Table 5.2: Interview Guide and Questions

Interview Guide	Question
The current state of Infrastructures in Public Higher Institutions	How would you describe the current situation of infrastructures in PHEIs in Nigeria especially in your institution?
Challenges associated with Higher Education Infrastructure procurement	What are the challenges you currently face in the process of infrastructure development e.g. provision of laboratories, administrative buildings, student hostels, libraries etc.?
Current sources of funding Public Higher Education Institutions (PHEIs)	What is the current process of providing infrastructure for your institution?
PPP in Higher Education Infrastructure procurement	Some researchers have suggested that funding of Higher Education should no longer be left in the hands of the government alone, has your institution considered any alternative financing arrangements?
Challenges associated with PPP procurement process	What were the challenges faced during the process of procuring infrastructures through PPP?

#### 5.4 Findings of the Exploratory Survey

As well as substantiating the findings of the literature review; the exploratory survey generated other findings, which were not previously identified in the literature review. Table 5.3 shows the findings of the exploratory survey; showing both the findings of the literature review as well as new findings, these findings are grouped into themes and sub-themes. Furthermore, the matrix of the thematic analysis of the qualitative data collected is attached to this thesis as Appendix 5.1.

Table 5.3: Findings of the Exploratory Survey (Themes &amp; Sub-Themes)

Research Objectives to be achieved	Interview Guides	Questions	Identified Themes and Sub Themes
To investigate infrastructure needs in Nigerian Public Higher Education institutions in order to ascertain the level of inadequacy.	Current state of Infrastructures in Public Higher Institutions	How would you describe the current situation of infrastructures in PHEIs in Nigeria especially in your institution?	Aged Obsolete Lack of Maintenance Not Appropriate Not Acceptable Poor Inadequate for existing Population
To identify and highlight the challenges associated with the traditional method of procuring Higher Education infrastructure in order to proffer solutions to the identified issues.	Challenges associated with Higher Education Infrastructure procurement	What are the challenges you currently face in the process of infrastructure development e.g. provision of laboratories, administrative buildings, students' hostels, libraries etc?	Governance <ul style="list-style-type: none"> <li>▪ <i>Corruption</i></li> <li>▪ <i>Transparency in project award</i></li> </ul> Cumbersome Procurement Procedures Funding <ul style="list-style-type: none"> <li>▪ <i>Inadequate Funding</i></li> <li>▪ <i>Mismanagement of Funds</i></li> </ul>
To identify and highlight the challenges associated with the traditional method of procuring Higher Education infrastructure in order to proffer solutions to the identified issues.	Current sources of funding PHEIs	What are the current process and sources of funding infrastructure development in your institution?	Donation & Endowment Federal Government <ul style="list-style-type: none"> <li>▪ <i>Capital Appropriation</i></li> <li>▪ <i>TetFund Intervention</i></li> </ul> Internally Generated Revenue (IGR)
To assess the use of PPP in the delivery of Higher Education infrastructure in Nigeria in order to determine the extent of its application.	PPP in Higher Education Infrastructure procurement	Some researchers have suggested that funding of Higher Education should no longer be left in the hands of the government alone; has your institution considered any alternative financing arrangements?  If yes, what are they?	Build Operate Transfer Model (BOT) <ul style="list-style-type: none"> <li>▪ <i>Student Housing</i></li> <li>▪ <i>ICT Laboratory</i></li> </ul>
To identify and highlight the challenges associated with PPP in the Higher Education infrastructure sector in order to proffer solutions to the identified issues.	Challenges associated with PPP procurement process	What were the challenges faced during the process of procuring infrastructures through PPP?	Governance <ul style="list-style-type: none"> <li>▪ <i>Transparency</i></li> <li>▪ <i>Corruption</i></li> <li>▪ <i>Autonomy</i></li> <li>▪ <i>Funding (inability to source funds)</i></li> <li>▪ <i>Stakeholders</i></li> <li>▪ <i>Inexperience</i></li> <li>▪ <i>Opposition</i></li> </ul> Abandonment of Projects

During this exploratory study, certain problems were identified, some of which are a confirmation of the problems already identified in the literature review. Below are the findings from the qualitative data collected are presented and discussed.

- **The current state of Infrastructures in Public Higher Institutions**
- **Findings:** *Inadequate infrastructure; the available facilities are aged, obsolete, poor and not adequate for the existing student population.*

#### ***5.4.1 Inadequate Infrastructures***

The first question asked the participants to describe the current situation of infrastructures in PHEIs, especially in their own institutions. Overall the respondents believed the infrastructures are not adequate, and the available ones are not up to the acceptable standard. This validates the findings of the literature review. Words such as obsolete, aged, not acceptable were used to describe the infrastructures at the PHEIs in Nigeria. The respondents clearly indicated that infrastructures in the PHEIs in Nigeria are inadequate; in their view believed there is therefore a need for expansion, because the available infrastructures do not match with the population of staff and students, which leads to frequent breakdowns; moreover, the hostels are not sufficient in size, where rooms designed for 3 students are allocated to 6 to 8 students, and in some cases 8 bed spaces are re-arranged to accommodate 16 students. This is because of the increase in the population in this sector, which is about 3 times the expected population, and therefore leads to infrastructures such as electricity and water supply overstretched. Some of the respondents were also of the opinion that poor and inadequate facilities tend to lead to a brain drain, especially in sciences. Providing Higher Education infrastructure is a large and complex undertaking for any government to meet adequately, which is why it is important for governments to explore diverse ways of financing and providing educational services (Aaltonen et al., 2008, Uche et al., 2011).

- **Challenges associated with Higher Education Infrastructure procurement**
- **Findings:** *Funding; Inadequate, mismanagement/misappropriation of funds  
Cumbersome procurement process,  
Corruption; lack of transparency in the process of project award.*

#### **5.4.2 Funding**

To understand the difficulties usually faced by individual Higher Education Institutions while trying to procure infrastructures for their institutions, this question was asked; *what are the challenges you currently face in the process of infrastructure development e.g. provision of laboratories, administrative buildings, students' hostels, libraries etc.?* It was clear from the interviews that the government is the major financier of Higher Education in Nigeria; most of the funds are received annually from the Federal Government through the appropriate Ministry Department and Agencies (MDA) that oversee all levels of education (The Federal Ministry of Education) and The National University Commission in charge of all universities. According to the participants, the amount of funding made available to these institutions is not enough and therefore cannot allow the proper provision of infrastructure. The participants believed that funding is the major challenge; this problem ranges from inadequate funding to mismanagement of the available funds, other problems faced by these institutions are cumbersome procurement procedures and lack of good governance.

##### *Inadequate funding:*

The most frequently mentioned amongst all the challenges that are usually associated with infrastructures procurement in PHEIs is inadequate funding: the funds made available by the government are usually not enough to cater for the needs of the institutions. Hence, this suggests that the funding of these institutions can no longer be left in the hands of the government alone.

##### *Mismanagement/ Misallocation of Funds*

Apart from inadequate funding, the participants believed that the institutions themselves misallocate the available funds, where these funds are used in providing infrastructures which are not the most essential ones, by not prioritizing the needs of the institutions. It



was also gathered that there is usually no transparency in the process of project allocation i.e. the process of awarding contracts to individual contractors.

#### **5.4.3 Cumbersome procurement procedures**

The process of procurement, contract award was said to be difficult, and cumbersome, thereby making it long and uneconomical.

#### **5.4.4 Corruption**

Most of the participants believed corruption is one of the reasons why the traditional method of infrastructure provision is usually unsuccessful.

- **Current sources of funding Public Higher Education Institutions (PHEIs)**
- **Findings:** *Federal Government; Capital Appropriation, Tertiary Education Trust Fund (TetFund)*  
*Donation and Endowment*  
*Internally Generated Revenue*

#### **5.4.5 Federal Government Funding**

It was also important to find out how these institutions obtained funds for the needed infrastructures, it was noted that there are three sources of funds but the major one from which the institutions receive the bulk of their funds from is the Federal Government. The sources of funds identified were:

##### *Capital Appropriation*

The individual institutions identify a need, draw up the design and prepare a budget for the project, which is sent to the Federal Government through the appropriate MDA for approval. If approved, the project is executed and if not, it will be kept on hold.

##### *Tertiary Education Trust Fund (TetFund) Intervention*

TetFund works by imposing a 2% Education Tax on assessable profit of all registered companies in the country and then offers financial assistance to institutions in the country. TetFund is also managed by the Federal Government.

#### **5.4.6 Donation & Endowment**

Some institutions get donations from some private organisations and some individuals and as well as alumni of the institutions. An example is the donation of a lecture theatre by a commercial bank.

#### **5.4.7 Internally Generated Revenue (IGR)**

Because of its tight annual budget, the Federal Government has directed that the institutions should raise 10% of funds from internally generated revenue; this is one of the ways by which the institutions obtain funds for infrastructure development. The IGR is raised through business ventures such as bookshops, bottled water companies and transport businesses.

- **PPP in Higher Education Infrastructure procurement**
- **Findings:** *Build Operate Transfer Model (BOT) for Student Housing and Information and Computer Technology (ICT) Laboratories*

#### **5.4.8 Build Operate Transfer Model (BOT)**

The findings indicate that PPP has been applied to the procurement of student housing, which also validates what was found in the literature. Some institutions have been able to partner with the private sector in the area of providing student accommodation using the Build Operate Transfer (BOT) Model of PPP; examples are 400 bed-space capacity student hostels for the University of Lagos and the University Village at the Obafemi Awolowo University Ile Ife, where about 16 developers have partnered with the institution to provide student accommodation ranging from 100 to 400 bed spaces using BOT Model of PPP. These partnerships are mostly for student accommodations, which are economic infrastructure in which direct return on investment can easily be achieved; hence, this suggests there is a need to investigate partnership in social/academic infrastructures which are equally important to both the students and the staff of the institutions.

- **Challenges associated with PPP procurement process**
- **Findings:** *Corruption, Funding, Autonomy, Stakeholders Inexperience and Opposition, Bureaucracy*

Having established that in the literature review that PPP currently exists in Nigeria and in the HE infrastructure sector, there was a need to discover the challenges associated with PPP procurement process, especially in Higher Education infrastructure development. Some respondents expressed the view that the major challenge faced by this procurement route in Nigeria is the inability of both government and the private sector to adhere to the terms and conditions of the agreement, which usually result to conflicts. PPP is termed as a form of risk transferring cooperation between the government and the private sector; if this cooperation is not well managed, then the desired success will not be achieved (Vries and Yehoue, 2013).

#### **5.4.9 Corruption**

Although PPP is supposed to mitigate incidents of corruption, corruption is still seen as one of the challenges of PPP in the country; the participants posited that if corruption was reduced to the minimum, PPP would thrive in Nigeria. Vries and Yehoue (2013) also argue that it is important to fight corruption to achieve functional public services while acknowledging the effect of corruption in the three stages of a construction project; namely, the decision, tender, and execution stages. At the design stage, a corrupt officer could decide to execute a project based on his or her interest (Hodge et al., 2010) and most of the time the cost of public services is unnecessarily increased as a result of corruption (Vries and Yehoue, 2013).

#### **5.4.10 Funding**

Some participants believe that the PPP procurement route is also limited by the inability of the developers to access funds. Some private developers are not able to obtain access to proper funding, while some who are already in partnerships are not able to complete the projects when due because they are not able to access the necessary funds. Ebohon et al. (2002) suggest that shortage of investment funds experienced by African financial

institutions is a result of not being able to draw savings from the private sector, and further argue that the effectiveness of financial institutions is crucial to the development and growth of any economy.

#### ***5.4.11 Autonomy***

The study found that PHEIs in Nigeria do not have total autonomy to be able to partner with identified private organisations. This is one of the problems currently faced by these institutions, therefore there is a limit to partnership arrangements they can make without approval from the federal level.

The fact that the institutions do not have total autonomy to be able to partner with the identified private organisations was indicated by the participants to be a problem in any partnership arrangement. There is therefore a need for the individual institutions to have a degree of autonomy in order to be able to reach out to potential partners, even though this is not a major problem, as the institutions are still able to go into partnerships.

#### ***5.4.12 Stakeholders Inexperience and Opposition***

Another problem associated with PPP in Nigeria is that the stakeholders have very low experience in the area of PPP procurement systems; the participants identified the need to properly educate the stakeholders on PPP procurement methods, and also the need to carry along important stakeholders throughout the process of procurement because stakeholders of a construction project are as important as the clients (Smith et al., 2001), such as the users, customers and members of the community. The government has already started training staff on PPP procurement method, as stated by one of the participants.

Stakeholders' opposition is another problem such projects usually face in Nigeria. This is evident in the Lekki Road project in Nigeria, where the community, passengers and commercial drivers were not willing to pay tolls and, as a result, took the Lagos state government to court. In cases like this, the ability to address the input of the stakeholders of a PPP project is very important for the Project to be successful (El-Gohary et al., 2006), Thus it is important to gauge the opinions and the interests of stakeholders in the development of PPP projects that relate to their needs.

#### **5.4.13 Bureaucracy**

Bureaucracy is another problem identified in the survey; this affects the smooth running of the entire process, with delays in different areas of the entire process.

#### **5.4.14 Discussion and Conclusions**

The purpose of this exploratory study is to substantiate the initial findings of the literature review, find out the current situation of Higher Education infrastructure development as well as PPP in Higher Education infrastructure provision in Nigeria. The study has corroborated the need for expansion of infrastructure at the PHEIs in Nigeria, it was established that the available infrastructures are not adequate and therefore need upgrading. The study found that there is an existing form of partnership between the government and the private sector in the provision of Higher Education infrastructure but mainly in procuring student accommodation. However, no specific framework has been designed for this purpose, and usually, a Memorandum of Understanding (MOU) is signed between the institutions and the private organisations involved. Consequently, the survey established the need to enhance the participation of the private sector in Higher Education infrastructure development especially in providing academic infrastructures such as laboratories, libraries, and computer laboratories, which are equally as important as student accommodation.

In conclusion, academic buildings are social infrastructures and therefore should not be treated as economic infrastructures in which direct return on services are expected, hence the need to develop a Framework/Model specifically for PPP projects in the Higher Education infrastructure sector. Consequently, there is a need to develop a viable Framework/Model for the procurement of social/academic infrastructure through PPP.

### **5.5 Chapter Findings and Summary**

This chapter presented the first stage of data collection; which is the exploratory survey. The exploratory survey presented in this chapter corroborated the findings of the literature review that was previously conducted, and further challenges associated with PPP in the HE infrastructure sector were identified. The process by which the research data was collected, and analysed was also presented in this chapter.

This exploratory study has helped to corroborate the findings of the literature review previously carried out and has achieved some of the main objectives of the research. Below are the research objectives achieved through this exploratory survey.

1. *To investigate infrastructure needs in Nigerian Public Higher Education institutions in order to ascertain the level of inadequacy:* The findings show that the available infrastructures are not adequate both in quality and in quantity, and the available ones are not up to the acceptable standard, therefore need upgrading.
2. *To assess the use of PPP in the delivery of Higher Education infrastructure in Nigeria in order to determine the extent of its application:* It was noted that some institutions have been able to partner with the private sector through Build Operate Transfer (BOT) Model of PPP but majorly in providing student accommodation.
3. *To identify and highlight the challenges associated with the traditional method of procuring Higher Education infrastructure in order to proffer solutions to the identified issues:* Inadequate funding, mismanagement/misappropriation of funds, cumbersome procurement procedures as well as corruption were found to be the challenges currently facing the traditional method of procuring Higher Education infrastructure.
4. *To identify and highlight the challenges associated with PPP in the Higher Education infrastructure sector in order to proffer solutions to the identified issues:* Funding problem, stakeholders' inexperience/opposition are found to be some of the challenges which PPP currently faces in Nigeria HE infrastructure sector.

To understand the problems as they affect individual projects, case studies of three completed PPP projects in the HE infrastructure sector were conducted through semi-structured interviews, and questionnaires, these are presented in the next chapter.

## Chapter 6: CASE STUDY, ANALYSIS AND DISCUSSIONS

### 6.1 Introduction

To gain further understanding of the problems identified through literature review and the exploratory study, case studies of completed HE infrastructure projects were carried out. The case studies were conducted by collecting data via semi-structured interviews and self-completion questionnaires. This chapter explains the aim of the case studies conducted, the methods by which the case study data were collected and presents and discusses the findings of the qualitative and the quantitative components of the analysis.

Additionally, the chapter provides background information concerning the three case studies, which are PPP projects in three PHEIs in Nigeria, namely: *El-Mubarak Female Hostel at the University of Ilorin*, *Adebayo Akande Hall at the University of Ibadan*, and *Information, Communication & Technology (ICT) Training and Development Centre at the Federal College of Agriculture, Ibadan*.

This chapter is divided into two parts; the first part includes the data collection process and analysis and discussion of the qualitative data obtained (from semi-structured interviews), where the qualitative data collected from the case study institutions are reported separately in the form of individual case reports and followed by a cross-case analysis. The second part includes quantitative data collection, analysis and results. The quantitative data were collected from both staff and students of the case study institutions. The results from both qualitative and quantitative data analyses are then merged together, and these results are further merged with the findings of the previous research element of this study. A summary of all the findings of each of the research elements of the study is then tabulated.

### 6.2 The aim of the Case Study

To achieve the aim and objectives of this research, which is to develop a PPP Model for the HE infrastructure sector, a comprehensive literature review was conducted, the literature review was followed by an exploratory study, which is reported in Chapter Five of this thesis. The literature review and the exploratory survey aided in the process of clarifying the scope and nature of the research study.

Following the collection and analysis of data during the exploratory study, and subsequent identification of challenges associated with PPP in the HE infrastructure sector, there was a need for further understanding of the problems in the context of each project. Hence, the aim of the case study part of this research is to gain insights into individual projects and understand the problems as they affect these projects. Table 6.1 shows the case study institutions, the projects and the respondents.

Table 6.1: Case Study Institutions, Projects, Respondents and Research Instruments

No	Case Study Institution	Project	PPP Model	Respondents	Research Instruments
1	University of Ilorin	Students' Accommodation (El-Mubarak Female Hostel)	Build Operate Transfer (BOT)	University Staff: Director of Physical Planning Unit University Staff: Student Affairs Unit  Private Sector Developer: Director  Students: Occupiers of the hostel	Interview  Questionnaires   Interview  Questionnaires
2	University of Ibadan	Students' Accommodation (Adebayo Akande Hall)	Build Operate Transfer (BOT)	University Staff: Director of Works Director, University Advancement centre University Administrator Private Sector: The staff of the Student Hostel Students: Occupiers of the hostel	Interview  Interview  Interview  Interview  Questionnaires
3	Federal College of Agriculture	Information and Communications Technology Training & Development centre.	Build Operate Transfer (BOT)	University Staff: University Administrator, in charge of partnerships and collaborations  Private Sector Developer/ Service Provider: Director  Students: Users of the facility (ICT Laboratory).	Interview   Interview  Questionnaires



### 6.3 Presentation of the Cases

The case study institutions and projects are presented in the following section, including a brief introduction and background information for each institution, and the case study projects, including information such as the Model of PPP project, the concession period, and the commission date.

### 6.4 Case Study One

<i>Institution:</i>	<i>University of Ilorin</i>
<i>Project:</i>	<i>El-Mubarak Female Students' Hostel</i>
<i>Procurement Type:</i>	<i>Build Operate Transfer (BoT) Model of PPP</i>
<i>Type of Infrastructure:</i>	<i>Economic Infrastructure</i>
<i>Commission Date:</i>	<i>October 2016</i>
<i>Concession Period:</i>	<i>21 years</i>

The University of Ilorin is one of Nigeria's PHEIs owned and funded by the Federal Government of Nigeria; the university was established by a decree in 1975. It is situated in Ilorin the capital of Kwara State in the South West region of Nigeria. Following the relocation of the university from the temporary to the permanent site which is on the outskirts of the city, one of the challenges faced due to the relocation is the fact that students were required to commute to and from the city centre, because of inadequate student accommodation to cater for the growing population. Consequently, the institution adopted a Build Operate Transfer (BoT) Model of PPP for providing accommodation to the student population, and PPP has grown rapidly since its introduction to the university. The university has currently completed and put into use eleven student hostels procured through PPP. Overall, the institution has eleven PPP students' hostels completed and in use while seven are currently under construction. However, despite the completion of about eleven PPP projects in the institutions, there are other uncompleted PPP projects which were abandoned because of the inability of the contractors to secure funds for the completion of the projects.

This case study project is a female student accommodation unit named El-Mubarak with 280-bed spaces. The hostel was born out of the need for more student accommodation on the campus, and the fact that the institution alone can no longer continue to provide students accommodation. The concession period of the project is 21 years which started

on the 31<sup>st</sup> of July 2015. The hostel was constructed and is being operated by a private company, after the end of the concession period, ownership of the hostel will be transferred to the university; however, both parties can go into other arrangements that might be suitable at that time.



Figure 6.1: Case Study Institution; University of Ilorin (Main Entrance)

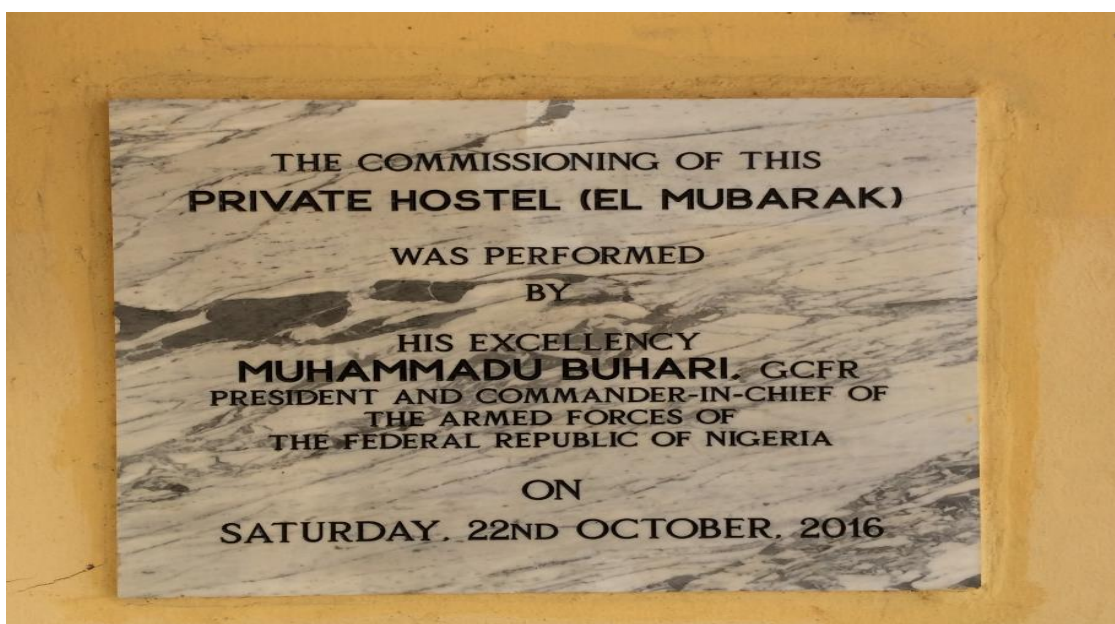


Figure 6.2: Commission Plaque of El-Mubarak Female Hostel



Figure 6.3: Case Study Project: El-Mubarak Female Hostel (Entrance)



Figure 6.4: Case Study Project: El-Mubarak Female Hostel (Exterior View)





Figure 6.5: Case Study Project: El-Mubarak Female Hostel (Interior)



Figure 6.6: Case Study Project: El-Mubarak Female Hostel (Interior)

## 6.5 Case Study Two

<i>Institution:</i>	<i>University of Ibadan</i>
<i>Project:</i>	<i>Adebayo Akande Hall</i>
<i>Procurement Type:</i>	<i>Build Operate Transfer (BOT) Model of PPP</i>
<i>Type of Infrastructure:</i>	<i>Economic Infrastructure</i>
<i>Concession Period:</i>	<i>25 years</i>

The University of Ibadan is one of the oldest Universities in Nigeria; it is in the South-West region of Nigeria, in Oyo State's capital, Ibadan. The University was established in 1948 by the Federal Government of Nigeria. As one of the foremost universities in the country, the facilities were ageing and in need of upgrading. While the government was doing its best to upgrade available facilities and provide new ones, it was becoming difficult for the government to provide all the necessary infrastructure, especially student accommodation suitable for postgraduate students.

Based on the accommodation needs of the institution identified by the private sector company, a proposal for a student hostel suitable for postgraduate students was forwarded to the institution, and after due process, a student accommodation suitable for postgraduate students; Adebayo Akande Hall was built. Adebayo Akande Hall is a hall of residence for postgraduate students studying at the University of Ibadan. As it stands, the hostel is now mostly occupied by foreign students who have come to study from other African countries, as this is one of the suitable accommodation units on campus that meet international standards.

Adebayo Akande Hall consists of around 120 rooms, ranging from single to double rooms and suites, all furnished for students' use. Just like other BoTs in the HEI sector that were researched in this study, there was no model used but a memorandum of Understanding (MoU) was signed for the partnership to commence. Even though the facilities provided in the hostel are up to the expected standard, however, the cost of staying there is rather high. It was also noted that the facility was also being used as a hotel/guest house where members of the public who were not students could lodge.



Figure 6.7: Case Study Institution: University of Ibadan (Main Entrance)



Figure 6.8: Case Study Project: Adebayo Akande Hall (Exterior View)





Figure 6.9: Case Study Project: Adebayo Akande Hall (Exterior View)



Figure 6.10: Case Study Project: Adebayo Akande Hall (Interior)

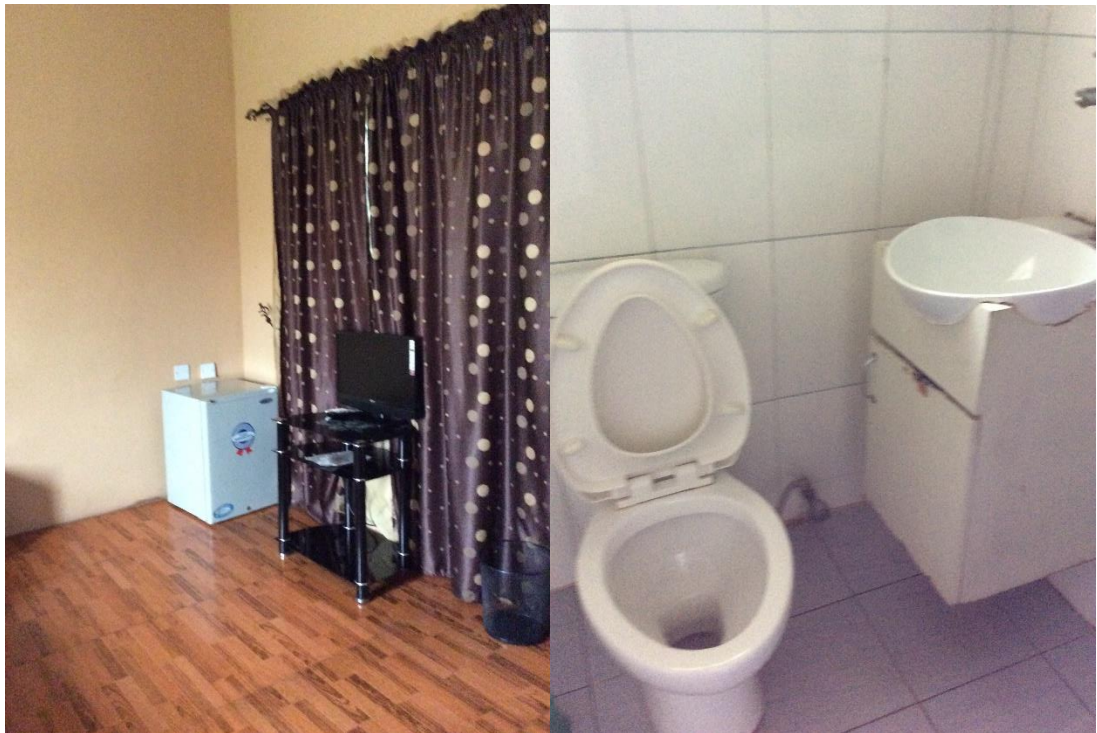


Figure 6.11: Case Study Project: Adebayo Akande hall (Interior)



Figure 6.12: Case Study Project: Adebayo Akande hall (Interior)



## 6.6 Case Study Three

<i>Institution:</i>	<i>Federal College of Agriculture, Ibadan</i>
<i>Project:</i>	<i>Information and Communication Technology (ICT) Centre</i>
<i>Procurement Type:</i>	<i>Build Operate Transfer (BOT) Model of PPP</i>
<i>Type of Infrastructure:</i>	<i>Academic/Social Infrastructure</i>
<i>Commission Date:</i>	<i>February 2012</i>
<i>Concession Period:</i>	<i>5 years</i>

The Federal College of Agriculture is a PHEIs owed by the Federal Government of Nigeria and established in 1921. It is situated in the capital of Oyo state South West region of Nigeria. The Federal College of Agriculture has faced various challenges since its establishment, ranging from inadequate infrastructure to dilapidation of existing ones, just like other PHEIs in the country. To solve some of the infrastructure challenges faced by the institution, the college partnered with the private sector to provide ICT facilities, computer software as well as professional IT training to students. The course is included in the school's curriculum. The concession period is five years and at the end of the concession period, the ownership of the supplied IT equipment will be transferred to the institution.

The Information and communication centre at the College of Agriculture is a collaboration between the institution and a private sector company; Bridgeup Nigeria Limited, the company specialises in computer and information technology development and training, and it is licensed by NIIT, a multi-national company that offer solutions to training and development in ICT. The partnership was born out of the need for students to acquire the necessary ICT skills before graduating from college. The partnerships run in such a way that the students register for the desired course alongside their other courses for the session. They will also make a payment for the course to the institution, in a form of user fee; however, the payment is made to the institution rather than to the private company directly. The institution then pays the company based on the number of students who registered and paid for the course.



Figure 6.13: Case Study Institution: Federal College of Agriculture (Main Entrance)

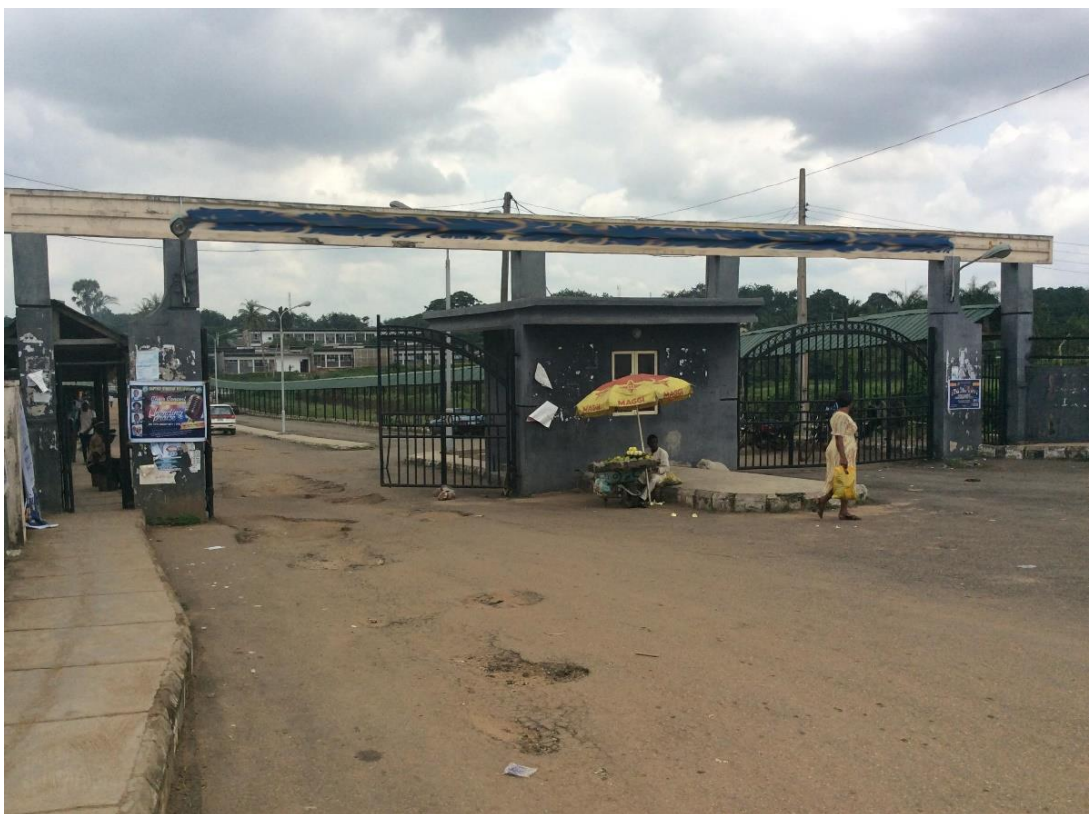


Figure 6.14: Case Study Institution: Federal College of Agriculture (Main Entrance)



Figure 6.15: Case Study Institution: Federal College of Agriculture (ICT Centre Sign)



Figure 6.16: Case Study Institution: Federal College of Agriculture (Interior)

## 6.7 Analysis of the Qualitative Strand of the Case Studies

As previously explained in the introduction section of this chapter, the data collected are grouped into two strands; qualitative and quantitative strands, they are analysed and discussed separately, and conclusions drawn from both strands. This section presents and discusses the qualitative data analysis of the three case studies: El-Mubarak Female Hostel, at the University of Ilorin, Adebayo Akande Hall, University of Ibadan and the ICT Development and Training Centre at the Federal College of Agriculture Ibadan.

## 6.8 Discussion of Findings: Case Study One - El-Mubarak Female Hostel

Semi-structured interviews were conducted with stakeholders of the project. Because of the kind of information required at this stage of the research, the management staff of the institution and the private company were selected to be interviewed. The director of the Physical Planning Unit (PPU) was interviewed. The PPU oversees the physical development of the institution, and the director of the unit has the responsibility of the day-to-day running of the unit and reports directly to the Vice-Chancellor of the Institution. Table 6.2 summarises the background information of the interview respondents and the duration of the interviews.

Table 6.2: Case Study One Interview Respondents' Background Information

Organisation Type	Highest Academic Qualification	Designation	Years of Experience	Research Instrument	Interview Duration
Higher Education Institution	MSc	Director	29 years	Interview	45 Minutes
Private Sector Contractor	PhD	Director	25 Years	Interview	90 Minutes

Each interview lasted between 45 to 95 minutes, during which notes were taken and an audio recording was made, with prior approval of the interviewees. Photographs of the projects were also taken, and the recorded interview was transcribed for analysis. The directors of the concerned departments of the institution were interviewed, in this case, the Directorate of Physical Development of the institution, who was regarded as able to provide the information needed. A representative of the private sector of the case study projects was interviewed who was the director of the private developer. Prior to the interviews, official letters were written to appropriate offices, as a form of introduction



and to explain the aim of the interview and the research in general. Appendix 6.1 is a sample of the introduction letter. While appendixes 6.2 and 6.3 are the interview questions for the HE institutions' and the private sector contractors. The qualitative data gathered was transcribed, and keyed into NVIVO and analysed using thematic framework analysis. Thematic framework analysis was discussed in detail in the methodology chapter (Chapter Four) of this thesis.

In the semi-structured interview conducted at the University of Ilorin, the respondents were asked to rate the level of participation of the stakeholders of the PPP project, and they indicated that they considered there was adequate participation by all the stakeholders involved in the process. They reported that there was no opposition from either the students or the staff of the institution. The respondents were further asked to rate the level of satisfaction of the stakeholders, in their estimation, and they both rated it high, attributing it to the fact that all the identified stakeholders were involved from the inception of the project. However, it must be borne in mind that this view is coming from the point of view of the institution and the private sector company and not from the students or staff (users) themselves.

The respondents explained that although individual students could not be involved in the process, student union leaders were informed of the institution's plan to partner with a private company to construct a student hostel on campus, and they in turn, informed the students. They reported that, regarding the introduction of PPP into the university, they had never had any significant issues with the student union leaders nor with the students themselves over any of the PPP projects. The respondents assigned this success to the fact that the institution had involved the 'end users' in the process from the start.

However, this kind of process cannot be said to be perfect, as they identified poor quality work by some private sector companies as one of the challenges they usually faced with PPP project implementation. In such cases, the institution issued warning letters to the party concerned, to ensure that the quality of work conformed to the standards of the institution.

The findings of the qualitative data collected from Case Study One, El-Mubarak female private hostel at the University of Ilorin showed that the PPP project was an example of a good process, and even though there were some abandoned projects, the completed ones

were up and running as expected. This level of success is attributed to the fact that the management of the institution did not leave the stakeholders out of the process but informed the students through the student Union governing body. However, ideally, this process should not stop at informing the Student Union committee but would also identify end users and involve them in the process.

## 6.9 Discussion of Findings: Case Study Two - Adebayo Akande Hall

To gain a good understanding of this case study project (concession), semi-structured interviews were conducted with senior management staff, including the Director who oversees the activities of works department, and reports directly the Vice Chancellor of the institution and the deputy who also supports the director in running the activities of the department. The interviews lasted for around 35 minutes to 48 minutes. The interview process and data treatment were as described in for Case study one, above. Table 6.3 shows the background information of the interview respondents and the duration of the interviews.

Table 6.3: Case Study Three Interview Respondents' Background Information

<b>Organisation Type</b>	<b>Highest Academic Qualification</b>	<b>Designation</b>	<b>Years of Experience</b>	<b>Research Instrument</b>	<b>Interview Duration</b>
Higher Education Institution	MEng.	Director	25 years	Interview	40 Minutes
Higher Education Institution	MSc	Deputy Director	27 Years	Interview	40 Minutes
Higher Education Institution	MSc/MBA	Director	17 Years	Interview	35 Minutes
Higher Education Institution	MSc	Administrator	7 Years	Interview	45 Minutes

The interview findings revealed there was no real stakeholder engagement. The institution received the proposal and went into partnership with the private sector company without adequate collaboration with staff and student of the institution. Nevertheless, the interviewed staff reported that the stakeholders were satisfied and that there was no stakeholder opposition. The respondent said that the partnership was up and running, and there was no opposition from students or staff of the institution over this partnership. The respondents rated the level of participation of the stakeholders as average.

## 6.10 Discussion of Findings: Case Study Three - ICT Development and Training Centre

Semi-structured interviews were conducted with a senior member of the staff of the institution and MD/CEO of the private sector contractor. The interviews lasted between 50 and 75 minutes. After the interview, a brief tour of the facility was conducted to obtain a better understanding of our discussions. Notes were taken during the interviews, and with prior permission of the respondents, the interviews were recorded. Furthermore, all the interview data collected were transcribed and analysed using thematic framework analysis just as with the other two case studies. Table 6.4 shows the interview respondents' background information and the duration of the interviews.

Table 6.4: Case Study Three Interview Respondents' Background Information

Organisation Type	Highest Academic Qualification	Designation	Years of Experience	Research Instrument	Interview Duration
Higher Education Institution	MSc	Lecturer, Head E-Library, Coordinator of Partnerships & Collaborations	10 years	Interview	75 Minutes
Private Sector Contractor	MSc, PhD in view	MD/CEO	22 years	Interview	50 Minutes

Based on the qualitative data collected from Case Study Three, via semi-structured interviews, it emerged that there was a major challenge faced by the institution because of this partnership. This was because of student opposition to the partnership. Apparently, the students were not in any way properly consulted before this partnership was entered. The institution believed the student union government had been informed of the planned collaboration and the introduction of ICT to their courses. However, when the issue degenerated into a conflict, the student union committee requested the minutes of the meeting where this was discussed but the institution was unable to provide this. In other words, there was no proper stakeholders' involvement or collaboration in this case. It is worth noting that not only the students were aggrieved regarding this collaboration, but some members of staff of the institution were also not in agreement with this partnership. They believed that proper consultation with them should have taken place before such a partnership was entered. On the other hand, the private sector company had faced many challenges during the partnership, some of which are bureaucracy, and delay in payment.

## **6.11 Analysis of the Quantitative Strand of the Case Studies**

This section presents the quantitative strand of the case studies conducted. Quantitative data were collected via self-completion questionnaires administered to both staff and students of the three case study institutions; El-Mubarak Female Hostel, at the University of Ilorin, Adebayo Akande Hall at the University of Ibadan, and ICT Development and Training Centre at the Federal College of Agriculture Ibadan.

### ***6.11.1 Quantitative Data Collection and Analysis***

Quantitative data was collected through self-completion questionnaires; the questionnaires were issued to both staff and students of the case study institutions to gather information about their level of participation in and satisfaction with the PPP projects. They were deemed to be in the right position to express their level of involvement in and satisfaction with the PPP process. The data collected was inputted into IBM SPSS and both descriptive and statistical frequencies were generated from the data.

The questionnaires are divided into two sections; the first section seeks the background information of the respondents: this is analysed and presented as the demographic information of the respondents. The second section of the questionnaires assessed their level of satisfaction with the PPP projects embarked upon by their institutions; the analysis is presented as the findings of the quantitative data.

According to Bryman (2012), there are three methods of analysing quantitative data, univariate; where only one variable is analysed at a time, bivariate; where two variables are analysed at a time so as to explore the relationship of the two variables and multivariate, where three or more variables are analysed concurrently. However, for this research, univariate analysis is adopted, because each of the variables will be analysed separately, as there is no need to compare variables in this case.

In total 62 respondents' questionnaires were returned, where 11 were from staff and 51 from students of the case study institutions. Out of the 15 questionnaires that were administered to staff, 11 were returned and all 11 were good for analysis. Of the 65 questionnaires administered to the students, 53 were returned; however, only 51 were



good for analysis: the remaining 2 were incomplete for analysis. Table 6.5 shows the response rate of the questionnaires.

Table 6.5: Questionnaire Response Rate

<b>Respondents</b>	<b>No Administered</b>	<b>No Returned</b>	<b>No Valid</b>	<b>Response Rate (%)</b>
Staff of the Case Study Institutions	15	11	11	73.3%
Students of the Case Study Institutions	65	53	51	82%

The number of staff participants who took part in this survey and their demographic details and background information are presented in table 6.6. From the table, the minimum qualification of all the participants is BSc, ranging from BSc, MBA, MSc to PhD holders. The table also indicates that 9.1 per cent of the participants have between 1 to 5 years of experience, 18.2 per cent have 6 to 10 years' experience, 27.3 per cent have 11 to 15 years of experience, 9.1 have 16- 20 years of experience 36.3 per cent of them have above 20 years' experience. This table shows that most of them have over 11 years of experience.

To ascertain the respondents (staff) understood what the research was about, it was necessary to find out if they were aware of the term PPP and if they were aware of any PPP project(s) embarked upon by their institutions. Table 6.7 shows the level of awareness of PPP in their institutions. From the table, all the staff who responded understood the term PPP and were aware that their institutions had partnered with the private sector to procure infrastructure for the institution. This showed that all the staff contacted were conversant with the term PPP and were aware of PPP projects in their institutions.

Table 6.6: Demographic Information of the Staff of the Case Study Institutions

<i>Age</i>			
	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
	39 years	1	9.1
	42 Years	1	9.1
	46 Years	1	9.1

47 Years	1	9.1
50 Years	1	9.1
52 Years	1	9.1
58 Years	2	18.2
59 Years	1	9.1
60 Years	2	18.2
Total	11	100.0

#### *Gender*

Category	Frequency	Percentage
Male	9	81.82
Female	2	18.18
Total	11	100.0

#### *Highest Academic Qualification*

Category	Frequency	Percentage
BSc	1	9.1
MBA	2	18.2
MSc	5	45.5
PhD	3	27.3
Total	11	100.0

#### *Years of Experience*

Category	Frequency	Percentage
1-5 years	1	9.1
6-10 years	2	18.2
11-15 years	3	27.3
16-20 years	1	9.1
20 years and above	4	36.4
Total	11	100.0

Table 6.7: Participants' (Staff) Awareness of Public-Private Partnership

#### *Awareness of PPP in the Education Sector*

Category	Frequency	Percentage
Yes	11	100.00

#### *Awareness of PPP in the Institution*

Category	Frequency	Percentage
Yes	11	100.00

Table 6.8: Demographic Information of the Students of the Case Study Institutions

#### *Age Group*

Category	Frequency	Percentage
16 – 25 years	14	27.5
26 - 35 Years	34	66.7
36 - 45 Years	3	5.9
Total	51	100.0

<i>Level of Study</i>			
	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
	Diploma (ND/HND)	17	33.3
	Undergraduate (BSc/BTech)	31	60.8
	Postgraduate (MSc/MTech)	3	5.9
	Total	51	100.0
<i>Gender</i>			
	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
	Male	30	58.8
	Female	21	41.2
	Total	51	100.0

As with the staff, it was first necessary to establish that the students understood what the research was about, it was necessary to find out if they were aware of the term PPP and if they were aware of any PPP project(s) embarked upon by their institutions. Table 6.9 shows the level of awareness of PPP in their institutions. From the table, 92.2% of the students were aware of PPP projects in their institutions, while 7.8 per cent were not aware, showing that many of the student respondents were conversant with the term PPP and were aware of the partnership between their institutions and the private sector company.

Table 6.9: Participants' (Students) Awareness of Public-Private Partnership

<i>Awareness of PPP Project in their Institution</i>			
	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
	Yes	47	92.2
	No	4	7.8

Total	51	100.0
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## Findings

When the students were asked if they used the facility their institutions procured through PPP, 82.4% of them said yes while 17.6% of them reported that they did not use the facility but that they were aware of the facilities, as already mentioned before almost all of them were aware of the PPP projects embarked upon by their institution.

The frequency of usage of the facilities by the students was also determined. It was found that 66.7 per cent of them used the facility every day while 33.3 per cent used the facility once a week, while all the 51 respondents had used the facility for between one to five years. The students were further asked about their general level of satisfaction with the facilities. The students' views were mixed in this regard: while some of them were satisfied with the facility, others rated their level of satisfaction as fair. In all, 63.2 per cent were satisfied while 36.8 per cent testified that their level of satisfaction was fair as shown in Table 6.10.

Although the percentage of satisfaction with the facility was high, the students would still have preferred to be involved in one way or the other. This was evident when they were asked if they were in any way involved in the process all of them said no, but 70.6 % of them indicated that they would have preferred to be involved while only 29.4% did not wish they were involved in the process.

Table 6.10: Participants' Usage of the facility procured through PPP  
*Usage of PPP Facility*

Category	Frequency	Percentage
Yes	42	82.4
No	9	17.6

Total	51	100.0
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***Frequency of Usage***

Category	Frequency	Percentage
Everyday	34	66.7
Once a week	17	33.3
Total	51	100.0

***Length of Usage***

Category	Frequency	Per cent
0 - 1 year	51	100.0

***Level of Satisfaction with the Facility***

Category	Frequency	Per cent
Satisfactory	12	63.2
Fairly satisfactory	7	36.8
Total	19	100.0

***Involvement in the process of Procurement of the Facility***

Category	Frequency	Per cent
No	51	100.0

***Preference: Would you prefer to be involved in the process?***

Category	Frequency	Per cent
Yes	36	70.6
No	15	29.4
Total	51	100.0

Some of the students who felt there was no need to be involved in the process agreed that they were very well satisfied with the project, Table 6.11 shows some reason why they did not think it was necessary to be involved in the process.

**Table 6.11: Reasons why students don't think it is necessary to be involved in the process**  
***Reasons why students don't think it is necessary to be involved in the process***

Frequency	Percentage
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Durable amenities provided and made available to students.	1	2.0
It was built to the taste of students.	1	2.0
Students' needs were catered for.	1	2.0
Students' needs were fully considered.	1	2.0
Total	51	100.0

The students were further asked reasons why they would have preferred to be involved in the process. Table 6.12 shows different reasons given by the students as reasons for their preferences. However, some of the students who felt they should have been involved in the process were sceptical about being involved because they thought their opinion might not matter anyway.

Table 6.12: Reasons why students think it is necessary to be involved in the process  
*Reasons why students think it is necessary to be involved in the process*

	Frequency	Per cent	Valid Per cent
Because it will create good relationship between the institution and the students	1	2.0	2.0
Because my request will probably improve the welfare of the students	1	2.0	2.0
Because we give different opinion/suggestion to develop the project for the benefit of the two sides	1	2.0	2.0
Because students will express their needs and how they can gain better benefits from the facilities.	1	2.0	2.0
I know what my fellow students need which are not provided.	1	2.0	2.0
If I must benefit from using it, then I need to be	1	2.0	2.0

<i>Reasons why students think it is necessary to be involved in the process</i>			
	Frequency	Per cent	Valid Per cent
involved in taking decision about it.			
If students are involved, it can help them to process what is needed.	1	2.0	2.0
To make my input as a student and my suggestion as a user will go a long way.	1	2.0	2.0
Involving students would let the authorities know exactly what the students need and how providing the facilities will facilitate their studies.	1	2.0	2.0
It will help in satisfying the needs of the students better.	1	2.0	2.0
It will oblige me of the happenings on campus.	1	2.0	2.0
Most needed facilities are not provided.	1	2.0	2.0
Need facilities based on students' interests.	1	2.0	2.0
Students are the eventual users of the facilities; as such it is important to be in the look of things.	1	2.0	2.0
Students knows better what they need.	1	2.0	2.0
Students should be involved at the initiation stage.	1	2.0	2.0
Students' needs are not put into consideration; there are few recreation facilities at the hall.	1	2.0	2.0
Students' opinion should be gathered to have facilities based on students' interest.	1	2.0	2.0

<i>Reasons why students think it is necessary to be involved in the process</i>			
	Frequency	Per cent	Valid Per cent
The cost of renting the rooms.	1	2.0	2.0
The facilities are used directly by the students and they always know what is best and help them.	1	2.0	2.0
The facility not easily accessible.	1	2.0	2.0
The students are aware of the challenges they face and as such can come up with the needed solutions.	1	2.0	2.0
To enable the interaction of students of the institution to be of high level.	1	2.0	2.0
To make the programme more sustainable and successful.	2	3.9	3.9
To provide my view on how the project is supposed to be.	1	2.0	2.0
Total	51	100.0	100.0

### ***Summary of Questionnaire Findings***

A large majority of the students indicated that they would want to be involved in the process of providing infrastructure which is going to be for their use. They gave reasons such as that they felt students' opinion matters in making decisions on facilities which will be used by the students. Some of them were also of the opinion that, to satisfy their needs, they need to contribute to the process, as shown in Table 6.12

Although some of them were sceptical about getting involved, as they believed that their opinions might not matter anyway, so they think it would be of no use, nevertheless, this also indicates their level of satisfaction with the integrity of the management of the institution. The findings from the analysis of the quantitative data analysed indicate that



most students would prefer to be involved in the process of providing facilities for their use.

Although most students were satisfied with the quality of the infrastructure provided, majority of them wished they were contacted for their input of the kind of facilities needed in the student accommodation. On the other hand, some students are indifferent they feel the institutions should be able to identify necessary needs of the students and therefore does not think they should be contacted for their opinion. While most of the staff contacted believe their input should be considered when going into partnership. They believe that some of these facilities are going to be used by them therefore, they should have a say in the process.

### **6.12 Cross-Case Analysis of the three Case Studies**

Having discussed the findings of individual cases it was then necessary to draw a cross-case analysis as discussed in the methodology chapter. Thus, the current PPP process that existed in the three cases is mapped, as shown in Figure 6.18. The existing process was mapped and examined to understand the current situation and what needed to be improved upon.

The findings from the case studies indicate that, in the HE infrastructure sector, PPP is mainly initiated by a private sector company which sends a proposal to an institution making its intention known to the institution, usually based on an identified infrastructure need in the institution. However, the private sector company is not able to properly identify the most urgent need of the institution, as an outsider. The company will only identify needs which are suitable for business purposes and are easy to execute, therefore, the institution should be in the best position to identify its needs, rather than an outsider. In such cases, there is only one proposal to be considered and therefore the institution is restricted to only one proposal for consideration. No competitive bidding process is established, and this does not encourage contributions from more companies and innovative ideas are not compared. Although this process of submitting a proposal by a company is what is called unsolicited proposal in PPP, such proposals are usually faced with challenges such as administrative, legal, or technical issues.

Furthermore, if the Vice-Chancellor is interested in the project, he or she would send the proposal to the appropriate unit or department, usually the Directorate of physical development (in charge of all the physical infrastructure of the institution and the PPP committee. However, if the Vice-Chancellor is not interested in the project, the proposal could be kept in view; this is also a problem of personal interest. In other words, the Vice-Chancellor must be interested in the project or like the idea before further steps are taken.

The Directorate of physical development of the institution assesses the proposal, which is carried out by the technical staff in the Directorate; the appropriate units will usually contact or liaise with the private company if there is any need for clarifications on the proposal. Recommendations are then made to the Vice Chancellor based on one proposal having been submitted. Although the technical staff of the directorate go through the proposals and compare it with the requirements and standard of the institution's infrastructure and determine the need for such facility, the assessment/ recommendations are carried out by the staff of the directorate, headed by the director, without any involvement of staff from other departments or of students. Some institutions have a PPP committee set up by the Vice-Chancellor; the committee typically includes some technical staff and top management staff of the institution. The PPP committee will assess the proposal and make recommendations to the Vice-Chancellor.

The institution gives the private sector company the requirement for any adjustments (if there are any) in the form of a brief, after which the governing council of the institution is informed of the proposed project, and an approval is sought for the project to proceed. Finally, after the approval is given by the council, the institution informs the governing body of the student union of the proposed project; this is not to seek for any contributions whatsoever, but rather to inform them of the intentions of the institution. Finally, after the approval of the council, a Memorandum of Understanding (MoU) is signed, usually without any proper governance structure being put in place, nor the source of project funds verified. This sometimes leads to an abandoned project, as the private company is not able to properly fund the project. On completion, the private sector company operates the facility until the end of the concession period and hands over to the institution or renews the concession, if applicable. Problems identified in the current process are; *no proper needs assessment/identifications by the institution, competitive bidding not encouraged, and personal interest placed above institution's interest, no proper*

*stakeholder engagement, poor briefing system, no proper governance structure, and the source of project funding not properly verified.*

### 6.13 Chapter Findings and Summary

This chapter presented all the case studies conducted in three PHEIs in Nigeria. Each individual case was reported, and a cross-case analysis was carried out. The level at which PPP has been used in procuring infrastructure in the case study institutions were presented, the challenges encountered during the PPP processes were further discussed.

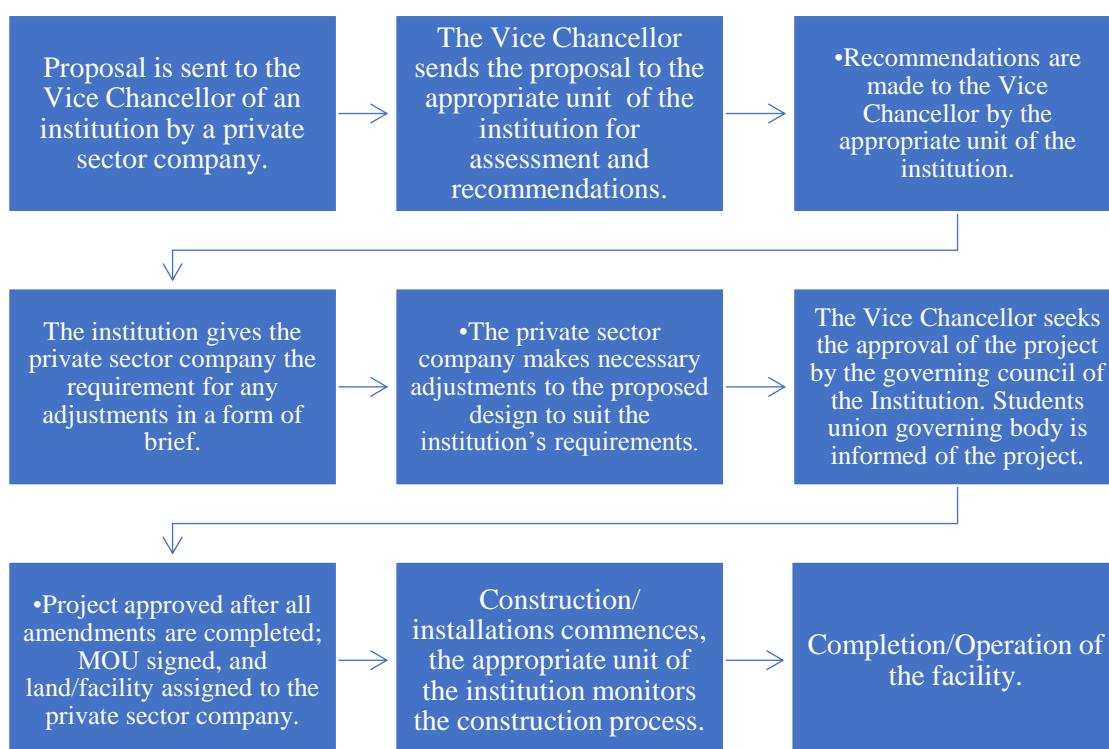


Figure 6.17: Existing PPP Process in the HE Sector

The findings of the case studies conducted indicate:

- No proper needs assessment by the institution
- Competitive bidding not encouraged
- Personal interest placed above the institution's interest
- No proper stakeholder engagement
- Poor briefing system,
- No suitable PPP governance structure
- The source of project funding not properly verified.
- Poor management of stakeholders
- The inability of the private companies to secure funds

Having identified the problems associated with HE infrastructure procurement through PPP, a theory which will help understand the identified problems is identified and discussed in the next chapter, hence, the theoretical framework of the research is discussed in the next chapter.

## Chapter 7: THEORETICAL FRAMEWORK

### 7.1 Introduction

Having identified the challenges associated with PPP processes in Nigeria, especially in the HE infrastructure sector, there is the need to achieve an understanding of those problems from a theoretical perspective, a theory relevant to the research problem is then identified and presented in this chapter. The research theory is the means by which the research data is interpreted and evaluated, and the means by which the research study is guided and informed. Collaborative Governance Theory (CGT) was identified as the underpinning theory for the research study and subsequently used as a lens to understand the phenomenon under investigation.

Consequently, this chapter presents the theoretical framework of the research, the theory that underpins the research, the process of identification of the theory, and the relevant concepts of the theory.

### 7.2 Governance Theory

Governance theory was identified as the main guiding theory for the study. This is because good governance in PPP has been identified as important in any PPP project. Moreover, the literature review, exploratory survey and case studies conducted all revealed that one of the major problems of PPP in Nigeria is the lack of a proper governance structure.

PPP as cooperation between the government and the private sector requires proper management of the relationships between the actors (van den Hurk and Verhoest, 2015). It also involves the sharing of risk between the two parties, therefore, the need for good governance in PPP projects cannot be over-emphasised. Furthermore, as a result of the complexities of PPP projects and the partnership itself, there is a need for proper examination of project governance (van den Hurk and Verhoest, 2015). Managing relations between parties is a major factor for the success or failure of PPP projects, and the literature shows that partners' interactions in a PPP project are sometimes a problem. According to van den Hurk and Verhoest (2015), successful partnerships are ensured by effective management and a good quality relationship. They define governance as the structures by which PPP projects are set up, coordinated and run; this includes the process

of making decision. Hodge et al. (2010) discussed the different legal forms which PPP can take, which all have implication in allocating roles and responsibilities between all the parties involved in the PPP arrangement. The legal form a PPP arrangement takes will depend largely on the legislative framework (Hodge et al., 2010, Vries and Yehoue, 2013). *PPPs are said to be a subset of the tools of government i.e. institutional arrangement through which public policy is mediated* (Hodge et al., 2010). Therefore a suitable governance mechanism should be designed in such a way that the interest of the public will be properly protected (Hodge et al., 2010).

There are various definition of governance: according to Bevir (2012), governance can be referred to as all processes of governing either formal, informal, government or organisations.

*'Governance is about the rules of collective decision-making in settings where there are a plurality of actors or organisations and where no formal control system can dictate the terms of the relationship between these actors and organisations'* (Chhotray and Stoker, 2009).

Governance can be said to be a practice undertaken by human beings who are guarded by power, positions and perceptions (Chhotray and Stoker, 2009), these practices are political activities, and decision-making, which are in most cases dependent on personal interests (Chhotray and Stoker, 2009). van den Hurk and Verhoest (2015) define PPP governance as:

*'the phenomenon of steering and coordinating PPP by setting up organizational structures, running decision-making procedure, and using instruments such as contracts and agreements that do not rest solely of the authority and sanctions of government'*

According to Bang (2003), governance theory was motivated by the concerns of the actions of political authorities, he also points out that governance was previously associated with political leadership or the hierarchical form of a system. However, it is now used to mean a new mode of governing which is different from hierarchical leading, rather a more collaborative way, where actors, both private and public, participate in a network system (Bang, 2003).

There are several theories of governance: examples include policy network theory, organizational theory, and institutional theory (Bevir, 2011), but the focus of this study is on PPP governance theory, as proposed by Skelcher (2010), which he categorised as legal, regulatory, democratic, and corporate governance. PPP governance is the process of governing actions and how things are done, ranging from the quality to the effectiveness in properly and successfully implementing them (UNECE, 2008).

UNECE (2004) defines good governance as *rules, processes and behaviour that affect the way in which powers are exercised, particularly as regards to openness, participation, accountability, effectiveness and coherence*. UNECE (2004) further identified six principles of good governance in Public-Private Partnership (PPP): these are; *participation, decency, transparency, accountability, fairness, and efficiency*. The findings of the survey are further explained in relation to the six principles of good governance in PPP.

### **7.2.1 Good Governance in Public-Private Partnerships**

According to UNECE (2008), there are six widely accepted core principles of good governance in PPP;

- *Participation; which is the level of participation of the stakeholders.*
- *Decency; adhering strictly to the rules and regulations of the process.*
- *Transparency; clarity and openness in the process of making decisions.*
- *Accountability; the extent to which political actors take responsibility for their words and actions.*
- *Fairness; The level at which rules and regulations are applied equally to all in the society.*
- *Efficiency; the level at which all resources both financial and human are used without waste, delay and without prejudicing future generations.*

All these are said to be closely linked to each other (UNECE, 2004). According to (UNECE, 2008) good governance in PPP will yield economic benefits, and the report advocates the integration of sustainable development alongside the six principles. Governance theory can therefore help to understand the functioning and operations of the governing system of PPP in Nigeria HE infrastructure sector.

### **7.3 Application of Governance Theory in Public-Private Partnership**

Governance studies on PPPs have been conducted by different researchers, including Abednego and Ogunlana (2006) who looked at the perception of risk by each party of a project and used that as a basis for the development of the concept of good project governance in relation to PPP projects, in their paper titled Good project governance for proper risk allocation in public-private partnerships in Indonesia.

Similarly, Aliza et al. (2011) in a journal paper entitled ‘The importance of project governance framework in project procurement planning’ identified the significance of implementing project governance framework (PGF) in order to guarantee the accountability and transparency of the decision makers to the stakeholders, which will assist in the avoidance of ethical issues.

van den Hurk and Verhoest (2015), in a paper titled ‘The governance of public-private partnerships in sports infrastructure: Interfering complexities in Belgium’ which evaluated the form of governance applied by the Flemish government for the procurement of Flemish sport infrastructure and concluded that the form of governance applied led to the *“interferences of political, multi-actor, and technical complexities which in turn compromised the performance of the Program”*(van den Hurk and Verhoest, 2015) page 201. The paper further showed how a complicated governance approach can affect the success of a PPP project.

In another study, Bekker (2015) investigated the concept of project governance from a ‘*governance*’ point of view instead of a ‘*traditional*’ point of view, and identified the factors causing discrepancies of opinion in the process of project governance and further proposed a conceptual project governance framework, in a journal paper entitled ‘Project Governance–The Definition and Leadership Dilemma’.

The above-identified articles on PPP governance all agree that there is a need for proper examination of governance structures in PPPs.

### **7.4 Collaborative Governance Theory**

Governance theory is very broad with different forms and branches. Collaborative Governance Theory (CGT) has been identified as the branch of Governance Theory which is most appropriate for this study; this is because PPP is usually a collaboration



between various stakeholders. Moreover, the strategic issues facing PPP in the Nigerian HE infrastructure sector is lack of a system of collaboration (governance systems) and the problem of stakeholder engagement/management. According to Montoya et al. (2015), collaborative governance in academic study originated from the work of professor Elinor Ostrom, who is known for her pursuit of ‘collective action’. Ansell and Gash (2008) regard collaborative governance as a *new form of governance* which brings the public and the private stakeholders together.

Ansell and Gash (2008) also suggest that collaborative governance benefits stakeholders in many ways, in terms of mutual gains, improving trust in other stakeholders, enhancing the efficiency and effectiveness of coordination, acquiring knowledge and information, and improving the legitimacy of decisions. However, they also point out that it is time-consuming, resource-intensive and can pose inequalities among stakeholders. They conclude that collaborative governance can neither be judged to be *good or bad* but it must be judged compared with available alternatives, as well as the context in which it is being used. Ansell and Gash (2008) also identified four process thresholds for collaborative governance:

- i. *Stakeholders agree to “come to the table.”*
- ii. *Stakeholders recognise other stakeholders as legitimate interlocutors*
- iii. *Stakeholders have a commitment to the collaborative process itself*
- iv. *Stakeholders develop a sense of “joint ownership” of the process*

Collaborative Governance is defined as follows:

*‘A governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets’* (Ansell and Gash, 2008).

Ansell and Gash (2008)’s definition of collaborative governance also entails six criteria:

- i. *The forum is initiated by public agencies or institutions.*
- ii. *Participants in the forum include non-state actors.*
- iii. *Participants engage directly in decision making and are not merely ‘consulted’ by public agencies.*

- iv. *The forum is formally organised and meets collectively.*
- v. *The forum aims to make decisions by consensus (even if a consensus is not achieved in practice).*
- vi. *The focus of the collaboration is on public policy or public management.*

Some other researchers have defined collaborative governance in the following ways:

*'A strategy used in planning, regulating, policy-making, and public management to coordinate, adjudicate, and integrate the goals and interest of multiple stakeholders'* (Levi-Faur, 2014).

*'The processes and structures of public policy decision making and management that engage people constructively across the boundaries of public agencies, levels of government, and/or the public, private and civic spheres in order to carry out a public purpose that could not otherwise be accomplished'* (Emerson et al., 2012).

*'A group of interdependent stakeholders, often from multiple sectors, who work together to develop and/or implement policies to address a complex, multi-facet problem or situation.'* (Robertson and Choi, 2012).

According to Emerson et al. (2012) the study of collaborative governance, in terms of theory, is often connected with the study of intergovernmental cooperation and it is said to be the new pattern for governing in democratic systems. When success is achieved in the use of this theory, the following are enhanced; citizens' trust in government, government's trust in citizens, citizens' compliance, government responsiveness, and government legitimacy (Cooper et al., 2006).

## **7.5 Application of Collaborative Governance Theory in Public-Private Partnership**

Ansell and Gash (2008) in their paper titled Collaborative Governance in Theory and Practice, conducted a meta-analytical study of literature on collaborative governance in which the main aim was to elaborate a contingency model of collaborative governance, 137 cases of collaborative governance across a range of policy sectors were reviewed and important variables which can determine if collaborative governance will produce successful collaboration were identified. The study also identified crucial factors within

the process of collaboration and concluded that collaborative governance indicates that stakeholders will be accountable for the outcome of policies.

Robertson and Choi (2012), in a paper titled *Deliberation, Consensus, and Stakeholder Satisfaction - A simulation of collaborative governance*, used agent-based modelling to investigate the conditions under which a consensus-oriented decision process among several stakeholders can lead to a satisfactory decision accepted by most stakeholders. Their finding resulted in four propositions and they concluded that in order for a collaboration to be successful, the strengths, and weaknesses of alternatives to collaboration should be investigated.

Imperial (2005) in an article titled *Using Collaboration as Governance Strategy- Lessons from Six Watershed Management Programs*, conducted a comparative cross-case analysis of six watershed programmes in order to examine how collaboration utilizing the Delphi Method could create an ideal model in the charity organization under a polycentric perspective.

Morse and Stephens (2012): *Teaching Collaborative Governance- Phases, Competencies, and Case-Based Learning*.

Bentrop (2001) *Evaluation of Collaborative Model: A Case Study Analysis of Watershed Planning in the Intermountain West*.

### ***7.5.1 Phases of Collaborative Governance***

According to the literature, there are different phases of collaborative governance and various researchers have come up with different phases which are similar in some ways. Morse and Stephens (2012) identified four phases of collaborative governance; Assessment, Initiation, Deliberation and Implementation.

## **7.6 Challenges of Collaborative Governance**

Ansell and Gash (2008) question if stakeholders who are divergent can actually work together in a collaborative way and further proposed that if stakeholders are committed to the collaborative process, the outcome of the collaboration could be successful.

## **7.7 Chapter Findings and Summary**

This chapter has identified the importance of theory in research and further identified the Collaborative Governance Theory (CGT) as the underpinning theory of the research. The theory was identified based on the findings of the study and the identified theory will further be used as a lens to understand the phenomenon under investigation. The developed Model, as well as the process by which it was developed, is presented in the next chapter.

## Chapter 8: **MODEL DEVELOPMENT, VALIDATION, AND EVALUATION**

### **8.1 Introduction**

The aim of this research is to develop a Public Private Partnership (PPP) Model that is suitable for the procurement of social infrastructure in Nigeria's HE infrastructure sector. To achieve this, the study followed the six stages of the Constructive Research Approach. These are: stage one which is *to identify a real-life practical problem that has a potential of being researched*, is presented in Chapters One, Two and Three of this thesis, while stage two which is *to obtain an understanding of the topic from practical and theoretical perspectives* is presented in Chapters Five, Six, Seven and Eight of this thesis.

The present chapter presents the third, fourth, fifth, and the sixth stages of the study. The third stage is *to develop/construct a solution to the identified real-life problem*; in this case, the solution is a viable PPP Model for the procurement of social infrastructure in Nigerian HE infrastructure sector. The fourth stage is *to identify the theoretical connections and the contribution of the research solution*, while the fifth and the sixth stages are to *show that the solution works and ascertain the suitability of the constructed solution* respectively.

This chapter is divided into two parts. The first part presents the research activities that culminated in the developed model, the findings of all the research activities in relation to the research objectives, and the recommended solutions to the problems identified through the research activities, validated theoretically. The second part of this chapter presents the fourth and sixth stages of the study, which are the experts' evaluation of the developed model and the process by which the evaluation was carried out.

### **8.2 Model Development**

To develop a model, it is necessary to understand what a model entails. A model is said to outline possible courses of action and present a preferred approach to an idea or thought which, when followed, would result in the expected outcome (Larsen et al., 2017). It usually consists of a series of inputs which are used to carry out some actions/activities under certain variables, which in turn produces outputs. A model should be simple, clear and have well-defined boundaries which are expandable in the future. The developed model comprises a series of procedures in carrying out social infrastructure PPP projects

in the HE infrastructure sector, for which the expected output is successfully procured PPP projects. For a model to be credible, it should be tested and validated. However, for this research, the developed model was evaluated by professionals in the field. The reason for this is that PPP procurement processes are usually long-term processes; therefore, the duration of this research was not adequate to put the developed model into real-life use; hence, the need for evaluation by experts.

The development of the model is based on the outcome of a series of activities which were carried out during the study; below are the step by step activities that culminated in the developed model:

- i. A systematic literature review was conducted to explore the infrastructure needs in Nigerian PHEIs and to investigate the extent to which the private sector has partnered with the government in HE infrastructure development.
- ii. An exploratory survey was carried out by conducting semi-structured interviews with stakeholders to validate the findings of the literature review and to identify challenges faced by PPP in the HE infrastructure sector.
- iii. Case studies of three completed PPP projects in Nigeria HE infrastructure sector were conducted to gain further understanding of the problems in relation to individual projects.
- iv. The existing process of PPP in the HE infrastructure sector was mapped out and critiqued to understand the shortcomings of the process and what needed to be improved upon.
- v. The need to achieve an understanding from a theoretical perspective required the identification of theory relevant to the research problem. Collaborative Governance Theory (CGT) was identified as the underpinning theory for the research study and subsequently used as a lens to understand the phenomenon under investigation.
- vi. PPP processes in three developed countries (Canada, the United Kingdom and the United States of America) were analysed, furthermore, opportunities and

applicable attributes that could help in the process of proposing solutions to the identified problems were identified.

The need to develop a suitable model for PPP in the Nigerian HE infrastructure sector was prompted by the findings of all the different aspects of this research. The findings of the systematic literature review, exploratory survey, and case studies in relation to each of the research objectives are presented in Table 8.1. In addition, to be able to develop a viable model, the existing process was examined and analysed to understand the current situation and what needed to be improved upon. The existing process is mapped out and discussed in Chapter Six of this thesis. Table 8.2 shows the challenges associated with PPP in the HE infrastructure sector which were found during the systematic literature review, exploratory survey, case studies and mapping out of the current process of PPP in the Nigerian HE infrastructure sector. Similarly, the applicable attributes of PPP in three developed countries (Canada, the UK, and the USA) were identified through analysis and helped in the development of the model.

Subsequently, based on the theoretical analysis of the findings of the literature review, the exploratory survey and the case studies, a model was developed, by finding solutions to the problems identified. The problems identified were analysed and solutions were proffered, and the solutions were then further mapped out and presented in the form of a process which is designed to enhance the participation of the private sector, improve efficiency/effectiveness of the PPP process, build trust among stakeholders, and help achieve successful PPP procurements in the Nigerian HE infrastructure sector. Table 8.1 shows all the findings of the research, based on the research objectives

Table 8.1: Findings of the Research Based on the Research Objectives

Research Objectives	FINDINGS OF THE RESEARCH BASED ON THE OBJECTIVES			Summary of Findings
	Systematic Literature Review	Exploratory Survey (Semi-Structured Interview)	Case Study	
1. To investigate infrastructure needs in Nigerian Public Higher Education institutions in order to ascertain the level of inadequacy.	<p>Most of the available facilities are dilapidated, not clean, safe and conducive for teaching &amp; learning, therefore they are below global standard.</p> <p>Available infrastructures are inadequate.</p> <p>Lack of maintenance culture.</p>	<p>Available facilities are stretched by the population.</p> <p>Inadequate Infrastructure.</p> <p>Aged &amp; obsolete infrastructure</p> <p>Lack of proper maintenance.</p> <p>Lack of a conducive environment for teaching and learning.</p>	<p>Inadequate infrastructures for the existing population.</p>	<p>Level of scarcity was ascertained.</p> <p>Findings show that funding of PHEIs can no longer be left in the hands of the government alone.</p>
2. To assess the use of PPP in the delivery of Higher Education infrastructure in Nigeria in order to determine the extent of its application.	<p>Build Operate Transfer (BOT) Model of PPP is currently being used to provide students' hostels.</p>	<p>Build Operate Transfer (BOT) Model of PPP has been used to provide students' hostels.</p>	<p>Build Operate Transfer (BOT) Model of PPP is being used to provide student hostels (economic infrastructure).</p> <p>Build Operate Transfer (BOT) Model of PPP is being used to provide Information &amp; Computer Technology (ICT) Laboratory (Social infrastructure).</p>	<p>Findings show that existing PPP in the HE infrastructure sector is mostly for the provision of student hostels.</p> <p>These are economic infrastructures in which direct return on investment is easily achieved.</p> <p>There is therefore, the need to consider partnerships in other areas of the HE infrastructure sector, such as academic infrastructures</p>



Research Objectives	FINDINGS OF THE RESEARCH BASED ON THE OBJECTIVES			Summary of Findings
	Systematic Literature Review	Exploratory Survey (Semi-Structured Interview)	Case Study	
				(science laboratories, computer laboratories etc.) which are equally as important as student hostels.
3. To identify and highlight the challenges associated with the traditional method of procuring Higher Education infrastructure in order to proffer solutions to the identified issues.	Inadequate funding.	Mismanagement of funds.	Lack of transparency.	Findings show that there is need for Nigerian government to look towards innovative procurement strategies such as PPP which is said to allow: asset financing, allocation of risks to party whom it is best fit, projects to be delivered on time and to cost, participation of contractors during the design stage thereby allowing innovation in design and construction.
	Corruption.	Misappropriation of funds.	Political interferences.	
	Poor construction work.	Political interference.	Political instability.	
	Poorly planned projects.	Cumbersome procurement procedures.		
	No stakeholder involvement	Lack of transparency in project award.		
	Contractor's input not sought to allow innovative ideas.	Political instability.		
	The long process of project approval.	Government is no longer able to fund the institutions because of the annual tight budget.		
	Abandonment of projects (either contractor abandons the project or government is no longer able to finance the project).	Use of approximate values for projects during budget planning.		
4. To identify and highlight the challenges associated with PPP in the Higher Education	Stakeholders' opposition.	Lack of transparency.	Stakeholders' opposition.	Findings show that PPP in the HE infrastructure sector needs a revamped, and a viable framework
	Inadequate experience.	Corruption.	Criticism by the public.	

Research Objectives	FINDINGS OF THE RESEARCH BASED ON THE OBJECTIVES			Summary of Findings
	Systematic Literature Review	Exploratory Survey (Semi-Structured Interview)	Case Study	
infrastructure sector in order to proffer solutions to the identified issues.	<p>Political involvement.</p> <p>Not enough due diligence.</p> <p>Weakness in project preparation.</p> <p>Engaging in projects that do not suit PPP appropriately.</p> <p>No specific policy/law.</p>	<p>Lack of total autonomy on the side of the institutions.</p> <p>Non- availability of funds to the private sector.</p> <p>Stakeholders' inexperience.</p> <p>Stakeholders' opposition.</p> <p>Abandonment of projects.</p> <p>Bureaucracy.</p>	<p>Inability to secure funds by the private sector.</p> <p>Low level of stakeholders' participation.</p> <p>Inadequate public awareness.</p> <p>Internal politics.</p> <p>No contribution from the design team.</p> <p>Unrealistic proposals.</p> <p>Uncertainty of demand</p> <p>Bureaucracy.</p> <p>Lack of proper payment mechanism.</p> <p>One-man private company.</p> <p>Non-remittance of payment to private companies by the institutions as at when due.</p> <p>The inability of students to pay tuition as at when due.</p>	developed for PPP projects.

Table 8.2: Challenges Associated with PPP in the HE Infrastructure Sector

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## CHALLENGES ASSOCIATED WITH PPP IN THE HE INFRASTRUCTURE SECTOR

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<b>Systematic Literature Review</b>	<b>Exploratory Survey (Semi-Structured Interview)</b>	<b>Case Studies of PPP Projects in HE Infrastructure Sector</b>	<b>Current Process of PPP in the HE Infrastructure Sector</b>
Stakeholders' opposition.	Lack of transparency.	Stakeholders' opposition.	Competitive bidding not encouraged.
Inadequate experience.	Corruption.	Criticism by the public.	Personal interest place above institution's interest.
Political involvement.	Lack of total autonomy on the side of the institutions.	Inability to secure funds by the private sector.	No proper stakeholder engagement
Not enough due diligence.	Non-availability of funds to the private sector.	Low level of stakeholder participation.	No proper briefing system.
Weakness in project preparation.	Stakeholders' inexperience.	Internal politics.	No proper project governance structure.
Engaging in projects that do not suit PPP appropriately.	Stakeholders' opposition.	No contribution from the design team.	Source of project funding not properly verified.
No specific policy/law.	Abandonment of projects.	Unrealistic proposals.	
	Bureaucracy.	Uncertainty of demand	
		Bureaucracy.	
		Lack of proper payment mechanism.	
		One-man private company.	
		Non-remittance of payment to private companies by the institutions as and when due.	
		The inability of students to pay tuition as and when due.	

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The challenges associated with Public-Private Partnerships in the Higher Education Infrastructure Sector which are presented in Table 8.2 are further grouped as follows:

**I. STAKEHOLDERS**

- Stakeholder's opposition
- Stakeholders' inexperience
- Low level of stakeholder participation.
- Criticism by the public.
- Inadequate public awareness.
- No contribution from the design team.

**II. GOVERNANCE**

- Corruption
- Lack of transparency.
- Political involvement
- Internal Politics
- Not enough due diligence
- No specific policy/law
- Lack of proper payment mechanism
- Weakness in project preparation
- Engaging in projects that do not suit PPP appropriately
- Lack of total autonomy on the side of the institutions
- One-man private company
- Competitive bidding not encouraged
- Personal interest placed above the institution's interest
- No proper project briefing system
- Bureaucracy
- No proper project governance structure

**III. FUNDING**

- Abandonment of projects
- Non- availability of funds to the private sector.
- Inability to secure funds by the private sector.
- Source of project funding not properly verified.

#### **IV. PAYMENT MECHANISM**

- Lack of proper payment mechanism
- Non-remittance of payment to the private companies by the institutions as and when due.
- The inability of students to pay tuition as and when due.

#### **V. UNCERTAINTY OF DEMAND**

#### **VI. UNREALISTIC PROPOSALS**

##### **i. Stakeholders' Challenges**

One of the identified groups of problems is stakeholder-related challenges, ranging from poor experience in the PPP procurement processes to stakeholders' opposition to the project, which arises because of inadequate or no involvement of stakeholders in the process. It is evident in the case studies conducted that most of the students and staff contacted preferred to have a say in the process of the PPP projects in their institutions. Some students argued that they are the users of the facilities and, therefore, should be able to identify what kind of facilities they need and what their requirements are. There is, therefore, a need to involve relevant stakeholders, such as staff, students, contractors, and the design team, throughout the process of the procurement, because stakeholders of a construction project are as important as the clients of the projects (Smith et al., 2001). Thus, to solve the problems regarding stakeholders, it is proposed that stakeholders are identified, consulted and engaged right from the inception of the PPP project.

##### **ii. Governance Problems**

The findings show that there is usually no proper governance structure put in place during PPP projects. For a PPP project to be successful, a good governance system must be in place, starting from the process of awarding contracts and going into partnerships. Governance is said to be a practice undertaken by human beings who are guarded by power, positions, and perceptions (Chhotray and Stoker, 2009). These practices are political activities and decision-making, which are most often dependent on personal interests (Chhotray and Stoker, 2009). Therefore, it is proposed that a suitable governance mechanism should be designed in such a way that the interest of the public will be properly protected.

### **iii. Funding Problems**

The research findings show that the PPP procurement route in Nigeria is sometimes limited by the inability of the developers to access funds. Some private developers are not able to access proper funding, while some who are already in partnerships are not able to complete the projects as and when due, because of their inability to access the necessary funds. To minimise problems such as this, a Special Purpose Vehicle (SPV) should be constituted as the project company for the PPP project. An SPV will allow for the inclusion/involvement of a funding body from the inception of the procurement process, thereby giving the assurance of project funds.

### **iv. Payment Mechanism**

This research found that there is currently no payment mechanism put in place for social infrastructure projects in the HE infrastructure sector. Social infrastructures are different from economic infrastructures, such as student hostels, where students make their accommodation payment directly to the private company, based on user fees. An example of a social infrastructure PPP project is one of the case studies conducted, which is a computer laboratory, where the charges are included in the tuition fees for students to pay. The private company is then paid directly by the institution, based on the number of students who registered for the course. However, this process has not been very successful; the contractor's payments do not materialise as and when due for various reasons, such as some students not being able to pay tuition fees as and when due, the institution not being able to balance the accounts as and when due, as a result of a high level of bureaucracy and the fact that there is no proper governance system in place. Therefore, for this kind of partnership to be successful, a proper payment mechanism must be in place from the inception of the project.

### **v. Uncertainty of Demand**

The research findings indicate that the problem of demand is one of the reasons why private sector companies are not keen on the provision of social infrastructure in the HE infrastructure sector. They fear that the demand for service might not meet expectations. For example, in one of the case studies conducted, there was no certainty that the number of students who registered the previous session would register in the next session, making it difficult for the contractor to forecast demand. To avoid this kind of problem, it is recommended that usage target is revised regularly throughout the project life cycle; it should be determined from the inception who the demand risk should be allocated to.

## **vi. Unrealistic Proposals**

As private companies usually send in unsolicited proposals to the institutions, they tend to present proposals that are likely to be accepted by the institutions. To make sure that their proposals are accepted, they present proposals that are not realistic, which might not even suit PPP, or even able to breakthrough as expected. The institutions, on the other hand, are enticed by the proposal and quickly go into an agreement/partnership without proper assessment of the proposal. Therefore, it is recommended that all project issues are properly analysed from the preliminary stage of the process.

Having identified the problems and challenges experienced during the procurement of HE infrastructure through PPP, and grouping them, as done above, the next stage is to proffer solutions to the problems. Table 8.3 shows the recommended solutions for each of the six groups of problems. The recommended solutions are then further explained in detail.

Table 8.3: Recommended Solutions

PROBLEMS	APPLICABLE ATTRIBUTES			RECOMMENDED SOLUTIONS
	CANADA	UNITED KINGDOM	UNITED STATES OF AMERICA	
<b>Stakeholder Challenges</b>	Competitive, efficient and transparent bidding process.	Competitive Bidding process.	Fielding everyone's voice (identify and involve stakeholders).	<b>Stakeholders' Engagement</b> Identify and engage stakeholders of the project. Liaise with stakeholders to improve understanding and trust; this is what collaborative governance theory advocates; it is about participatory decision making, which encourages, stakeholders to participate.  It also improves trust, the efficiency and effectiveness of coordination is enhanced, knowledge and information are acquired, and the legitimacy of decisions are improved upon.
<b>Governance Problems</b>	Regular updates of future projects.	The separation between designers and users mediated through Special Purpose Vehicle (SPV).	Avoid none- complete clauses.	
	Consistent and predictive procurement process.	Stakeholders' engagement/agreement.	Student centred priorities.	<b>Special Purpose Vehicle (SPV)</b> Constitute a Special Purpose Vehicle (SPV) for the project to avoid one-man private company (this will allow for innovations as the design team will be involved from the inception, funding bodies will also be involved). The constitution of an SPV will also minimise the level of bureaucracy and political interferences.
	Avoid prolonged bidding/procurement period.	Discussion with external parties.	Request for proposals as against unsolicited proposals.	
	Standardised documentation.	Experience project team put in place.	Clearly defined need and a proper solution to the need.	<b>Open Competitive Bidding</b> There should be open competitive bidding, to show transparency and avoid mistrust. Currently, private
	Special Purpose Vehicle (SPV).	Project governance structure set-up.	Project framework developed.	
		Public participation		



PROBLEMS	APPLICABLE ATTRIBUTES			RECOMMENDED SOLUTIONS
	CANADA	UNITED KINGDOM	UNITED STATES OF AMERICA	
				companies make their intention known by sending proposals to the institutions; however, this should be the other way around; the institutions should go through a normal bidding process by an advertisement for all to partake.
<b>Funding Problems</b>	BOND	Special Purpose Vehicle (SPV).		<b>Special Purpose Vehicle (SPV)</b>  The constitution of an SPV will take care of this problem; the funding bodies would have been identified from the inception of the project. This will avoid project being abandoned.
<b>Payment Mechanism</b>		A unitary payment which involves Availability Payment and Service Fee.  User Charges + Subventions  Usage Based Payment  Service Fees  Service Performance Payment	Unitary Payment (Availability Payment Model, Usage Payment)  User Fees.  Annual Ground Lease Payment.	<b>Unitary Payment System</b>  Unitary payment model will be adopted. In some cases, such as sports facilities, user fees will be adopted.  There is no one size fits all, each process will be tailored to a specific project.

PROBLEMS	APPLICABLE ATTRIBUTES			RECOMMENDED SOLUTIONS
	CANADA	UNITED KINGDOM	UNITED STATES OF AMERICA	
<b>Uncertainty of Demand</b>	The problem of control over demand: Bond moves with GDP growth or usage target is revised at regular intervals throughout the life of the project.			<b>Regular Revision of Usage Target</b> Usage Target should be revised regularly throughout the project life cycle.
<b>Unrealistic Proposals</b>	Realistic Project Procurement Time Table laid-out.			<b>Project Appraisal/Analysis</b> The institution should identify a need and propose a realistic solution to the need.

Table 8.4: Recommended Solutions for each of the Problems

PROBLEMS/CHALLENGES		RECOMMENDED SOLUTIONS
1.	Stakeholder Challenges	Stakeholders' Engagement
2.	Governance Problems	Special Purpose Vehicle (SPV) Open Competitive Bidding
3.	Funding Problems	Special Purpose Vehicle (SPV)
4.	Payment Mechanism	Unitary Payment System
5.	Uncertainty of Demand	Regular Revision of Usage Target  Determine who bears the demand risk from the inception of the project.
6.	Unrealistic Proposals	Proper Project Appraisal/Analysis

#### i. Stakeholders' Engagement

Stakeholders are individual or groups of people who could either be internal or external. The general perceptions of stakeholders of a construction project usually affect the outcome of the project either positively or negatively (Olander, 2007).

The findings from the research show that stakeholders are not usually consulted from the inception of the projects; therefore, a proper stakeholders' management system should be followed if the project is to be successful. Students and staff of the institution who will benefit from the project should be identified, followed by a proper collaboration with them, either face to face, or with the use of questionnaires (hard copies or electronic). Thus, a stakeholder involvement strategy should be followed in these steps: Inform, Consult, Involve, Collaborate and Empower. External stakeholders are also expected to be consulted. Inclusive collaboration will give stakeholders a sense of belonging, and decisions are made in more engaging ways. Moreover, decisions made during the collaboration should be implemented, as some respondents think their suggestions might not be considered, even if they contribute to the process. It is therefore proposed that the institution should identify and consult relevant internal and external stakeholders of the PPP project.

According to Kurniawan et al. (2014), understanding the expectations of the stakeholders will help to achieve expected collaboration, also the expectations of the stakeholders should be properly considered while developing any financial model (Kurniawan et al., 2014). Identifying and engaging relevant internal and external stakeholders of the project will improve understanding and trust; this is what collaborative governance theory advocates: it is about participatory decision making, which encourages stakeholders to participate. It also improves trust, the efficiency and effectiveness of coordination are enhanced, knowledge and information are acquired, and the legitimacy of decisions are improved upon. Stakeholders' communication and engagement strategy should be developed, and their role in the project; either as decision makers, collaborators, or some other role, should be determined, and the process of information dissemination among the stakeholders should also be determined.

**ii. Special Purpose Vehicle (SPV)**

A Special Purpose Vehicle (SPV) is a commercial company, usually established to undertake a PPP project. It is recommended that an SPV is constituted for the purpose of any PPP project in the HE infrastructure sector. The Constituted SPV will avoid a one-man company system and solve the problem of the separation between the users and the design team because it will comprise all stakeholders of the project; the client's representatives, the private company and the investors, as well as the design team. The constitution of an SPV will allow innovations and minimise the level of bureaucracy and political interference and the likelihood of the project being abandoned will be minimised.

It is suggested that one of the causes of failure in PPP is a poorly defined governance structure; however, an SPV will help in achieving a good governance structure. PPP as cooperation between the government and the private sector involves the sharing of risk between the two parties; therefore there is the need for PPP governance to be properly examined, because of the complexities of PPP projects and the partnership itself (van den Hurk and Verhoest, 2015). The structures by which PPP projects are set up, coordinated and run is termed the governance, this includes the process of making decisions. Therefore, the decision makers and the timeframe for decisions to be made are determined during the process of setting up the project company (SPV).

### **iii. Open Competitive Bidding**

The findings of the case studies conducted showed that PPP projects in the HE infrastructure sector are mainly initiated by private sector companies who send proposals to an institution making their intention known to the institution. The proposal is usually based on an identified infrastructure need of the institution. In such cases, the institution is restricted to only one proposal for consideration which does not encourage a variety of innovative ideas.

This study is therefore, recommending that a request for proposal is put forward by advertising the project in an approved format in a form of an open competitive bidding process, whereby interested parties send in their innovative proposals based on the information provided in the project brief. An open competitive tendering system will demonstrate a level of transparency and avoid mistrust which are some of the problems associated with the PPP procurement method in Nigeria. The open competitive tendering process will also encourage private sector companies to put forward innovative ideas and solutions. To be able to achieve clarity, transparency, and accountability in the delivery of PPP projects, Nigerian PHEIs should consequently avoid unsolicited proposals for PPP projects until a certain maturity level is attained.

### **iv. Unitary Payment System**

The fact that direct returns on investment can be achieved for economic infrastructure such as student hostels, where the current arrangement is that students pay directly to the private companies, with the institutions monitoring the agreed accommodation fees, does not mean the same arrangement can be feasible for social infrastructures. With facilities such as science laboratories and libraries, the payment mechanism cannot be the same, as the students are not able to pay directly to the private companies. Social infrastructures are not able to generate revenues directly from the users, so they cannot be user fee-based. This study is thus recommending the Unitary Payment Method for such PPP infrastructure. Unitary payment is based on the availability, performance, and service level of infrastructure, regardless of demand. The payment method to be adopted would have been determined from the inception of the procurement process.

**v. Regular Revision of Usage Target**

In order to tackle the problem of uncertainty of demand, such as the case study in which the contractor was not able to determine if there would be consistency in the number of registered students, it is recommended that the usage target should be revised regularly throughout the project life cycle. In addition, there is a need to determine who bears the demand risk from the inception of the project.

**vi. Proper Project Appraisal/Analysis**

To avoid bogus projects which are never completed but abandoned, it is very important that the institution should identify an infrastructure need and propose a realistic solution to the need. Furthermore, the solution to the identified need (project) should be properly analysed to determine the suitability of the PPP procurement method, if it will achieve value for money, and the suitability of the facility for the purpose for which it is intended.

Figure 8.1 is the developed Model for PPP in the HE infrastructure sector. The colour differentials are to differentiate each of the stages of the Model, the Model is also attached to the Thesis as Appendix 8.1.

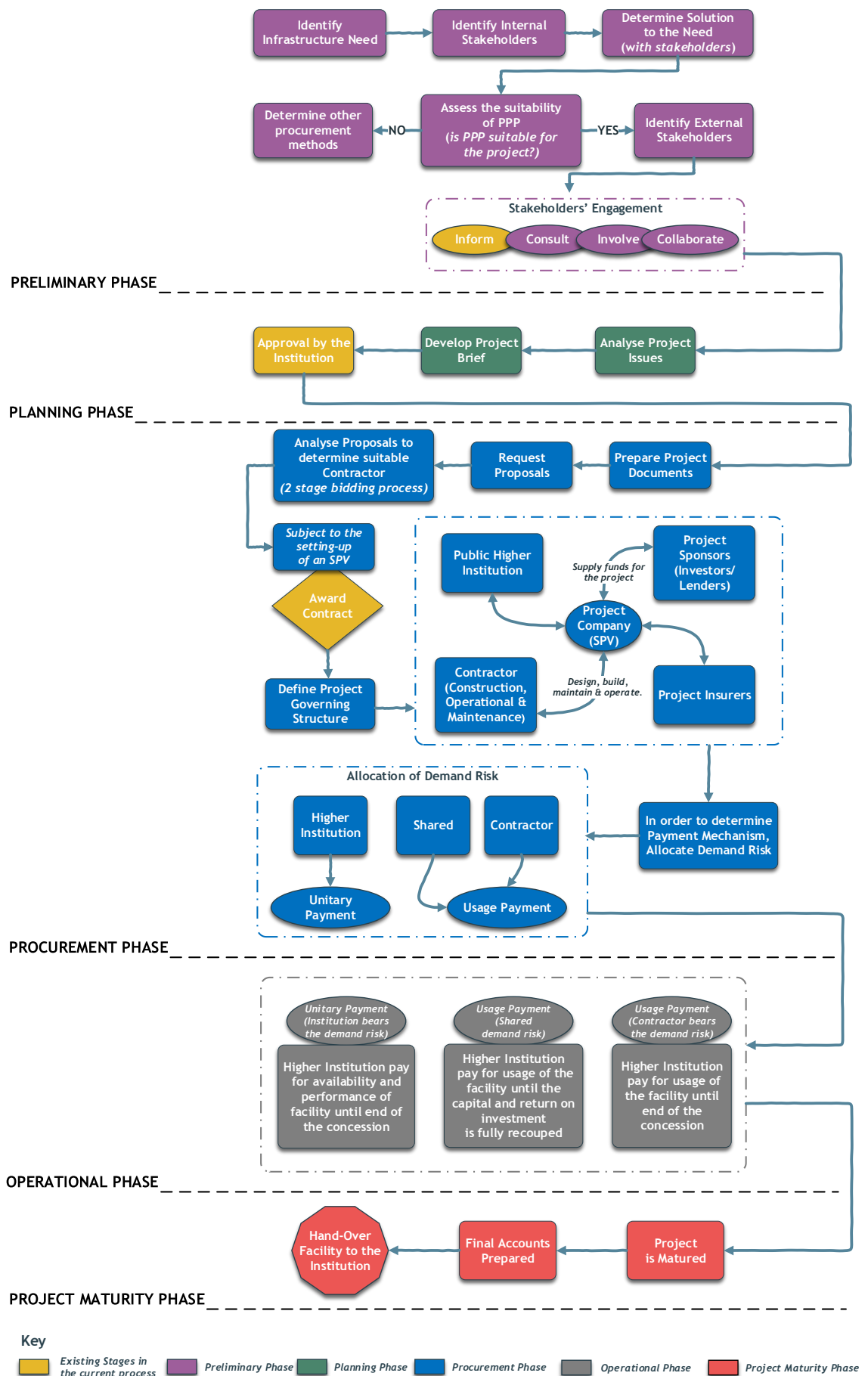


Figure 8.1: A Public-Private Partnership Model for Higher Education Infrastructure (also attached as Appendix 8.1).

### 8.3 Model Description

The developed Model is divided into 5 phases; *Preliminary Phase, Planning Phase, Procurement phase, Operational Phase, and Project Maturity Phase*. Each of the phases is discussed below, including what needs to be done, the expected outcome and the decision at the different stages.

#### i. Preliminary Phase

This is the first phase of the process; the task in this phase is for the higher institution to identify an infrastructure need; this will take project identification away from the private sector (contractor). From the case studies carried out, it was noted that PPP projects are usually initiated by private companies, which send in proposals to the institutions. Even though there is what is called the unsolicited proposal in PPP, they are usually faced with diverse administrative, legal and technical challenges. Therefore, it is advisable for the institution to identify its infrastructure needs. In cases where unsolicited proposals are submitted, then this model wouldn't be applicable.

After the identification of the infrastructure need, relevant stakeholders are identified. It is advised to identify and consult relevant stakeholders of the project at the inception of the process, at this stage; relevant stakeholders should be determined and properly consulted if the project is to be successful. Students and staff of the institution who will benefit from the project in one way or the other should be identified, there should be a proper collaboration with them, either face to face or with the use of questionnaires (hard copies or electronic). The stakeholders' engagement strategy should be followed: Inform; *to keep the stakeholders informed with all relevant information*; Consult; *to acknowledge stakeholders' concerns and provide feedback where necessary*; Involve; *to work with the identified stakeholders in identifying solutions to the institution's need*; Collaborate; *to partner with the stakeholders*; Empower; *to make sure that stakeholders' decisions are considered favourably, and viable recommendations are implemented*.

One of the six principles of good governance in PPP, *participation*; participation is the level of involvement of all stakeholders throughout a project's life cycle. A stakeholder is anyone who can be affected or can influence the achievement of an organisation (Aaltonen et al., 2008, Chinyio and Olomolaiye, 2010), and their views often differ (Aaltonen et al., 2008, Chinyio and Olomolaiye, 2010). The ability to achieve proper stakeholder management is said to be crucial to the success of any PPP project (El-Gohary



et al., 2006). It should be borne in mind that stakeholders of a construction project such as the users, customers and members of the community are as important just as the clients of the project (Smith et al., 2001),

The literature reveals that most times stakeholders are not fully considered during a PPP procurement process, thereby resulting in stakeholders' opposition. An example is the Lekki-Epe road project, in Lagos Nigeria; the project is a 30-year concession to design, construct, finance and operate a toll road. It came to a commercial close in April 2006, and the concession's effective date was November 2008. However, residents, motorists and passengers wrestled with the government over the collection of tolls and eventually sought legal redress. This shows that stakeholders' interests were not taken into consideration during the process of the road project. In cases like this, ability to address the input of the stakeholders of a PPP project is very important for the Project to be successful (El-Gohary et al., 2006), this is one of the reasons why it is important to gauge the opinion and the interest of stakeholders in the development of PPP projects that relates to their needs. Moreover, as previously discussed in the theoretical framework chapter of this thesis (Chapter Seven), many researchers believe that collaboration in PPP will enhance success in any PPP project.

After identifying an infrastructural need of the institution, which is followed by the identification of relevant stakeholders, a solution to the need is defined in conjunction with the stakeholders. In addition, the approach by which the problem will be solved is evaluated; does the solution need a new construction or renovation work, what is the most suitable procurement method for the project? One of the challenges currently faced by PPP projects in Nigeria is the fact that wrong procurement routes are chosen for projects, therefore proper assessment of the suitability of the PPP procurement route should be carried out. After the determination of the solution to the infrastructure need, and the appropriate delivery mechanism; i.e. if it is determined that PPP is the most suitable procurement method, then the project should be procured through PPP. However, if it is deemed that PPP is not the best option for the procurement of the project, then the project is procured through the traditional procurement method. However, the findings from the literature review indicate that there is shortage of infrastructure in Nigeria's public higher education institutions, and the government can no longer fund these infrastructures, coupled with the need for innovation in design and construction of such infrastructures, which would entail PPP as the preferred procurement method for most of the projects.

Nevertheless, it is still advisable to consider all procurement options to determine the best suitable option for the project.

Having determined that PPP is the appropriate procurement method for the project, then, external stakeholders are identified; these are consultants and include the design team, engineers, architects, quantity surveyors who will help in the preparation of project documents. External stakeholders (consultants) are also expected to be involved at this stage. The inclusive collaboration will give stakeholders a sense of belonging, and decisions are made in more engaging ways. In addition, decisions made during the collaboration should be implemented, as some respondents believe their suggestions might not be considered, even if they could contribute to the process. It is therefore proposed that at this stage, the institution should have identified and consulted relevant internal and external stakeholders of the PPP project.

Engaging and liaising with the stakeholders will improve understanding. This is what Collaborative Governance Theory advocates; it is about participatory decision making, which encourages stakeholders to participate. It will also improve trust, enhance the efficiency and effectiveness of coordination, acquire knowledge and information, and improve the legitimacy of decisions. Stakeholder communication and engagement strategy should be developed, and their role in the project, e.g. whether as decision makers or collaborators, should be determined and the process of information dissemination among the stakeholders should be determined at this stage. It is therefore important to carry out an analysis of the stakeholders and their stakes, which can, in one way or another influence the success of the PPP project.

## **ii. Planning Phase**

At the planning phase of the process, the project issues should be analysed. This will include a proper appraisal of the project, the viability, the benefits, Value for Money (VfM) assessment and the risks associated with the project. The project brief is also developed in this phase of the process. After the development of the project brief, taking into consideration all the contributions of both staff and students who have been identified as stakeholders, a request for approval of the project is then made to the appropriate levels of the institution; this would include the Vice Chancellor and the Governing Board of the Institution.

The ability to properly analyse the project issues and come up with a robust project brief in conjunction with relevant stakeholders both internal and external will help in mitigating the problem of abandoned projects, which usually arises because of unrealistic proposals from contractors. Considering accountability, *the extent to which political actors take responsibility for their words and actions*, in undertaking a PPP project, there is a need for the institution to know whether the PPP project will achieve Value for Money (VFM), with the goals of the project clearly defined (UNECE, 2008). The institution should also make sure that the procurement procedures are followed to the letter. Projects are usually not properly planned and may end up being abandoned as a result of inadequate planning (both technical and financial). As Ewa (2013) points out, most projects are abandoned because they are conceived based on inappropriate reasons or conflicts of interest. Some respondents believed that the government is not accountable in the PPP process and is unable to provide the private sector with the needed security by protecting the rights of the investors and promoting efficiency in the enforcement of contracts.

### **iii. Procurement Phase**

Following the development of the project brief from the previous phase and subsequent approval by the institution's governing board, there is a need to prepare project documents and seek proposals from interested companies via an open competitive tendering system. Hence at this stage, a request for proposal is put forward by advertising the project in an approved format whereby interested parties send in their innovative proposals based on the information provided in the project brief. An open competitive tendering system will demonstrate a level of transparency and avoid mistrust. Currently, private companies make their intention known by sending proposals to the institutions as a form of an unsolicited proposal. However, this should be the other way around: the institutions should go through the normal bidding process by advertising the project for all interested parties to partake. A two-stage bidding process is recommended, where the contractors are first prequalified before the submission of proposals. This will help to reduce the number of unsuitable proposals submitted for evaluation. At the end of the bidding process, the proposals are evaluated, and an eligible contractor is determined and consequently awarded the contract.



Figure 8.2: Two Stage Bidding Process

Good governance in PPP advocates *fairness*; this is the level at which rules and regulations are applied equally to all in the society. Equal opportunities should consequently be accorded every individual who is interested in bidding for any PPP contract in the institution. The procurement process should also be fair and open. There should be clarity in the process. One other challenge currently faced by PPP projects in Nigeria is that the wrong partners are engaged in the delivery of the projects because expert advice is not sought; moreover, partners are engaged based not on experience and capability but on nomination by political leaders.

The open competitive tendering process will encourage private sector companies to put forward innovative ideas/solutions. Transparency, which is *clarity and openness in the process of making decisions*, is one of the six principles of good governance in PPP. The institution has to be transparent in the procurement process, the selection processes and take into account the interests of the stakeholders (UNECE, 2004). Corruption is seen as one of the challenges associated with PPP in the country; the participants in this study posited that if corruption is reduced to the minimum, PPP will thrive in Nigeria. As (Vries and Yehoue, 2013) point out, it is important to fight corruption in order to achieve functional public services, while acknowledging the effect of corruption in the three stages of a construction project, namely, the decision, tender, and execution stages.

According to (UNECE, 2008), transparency in PPP involves making all information regarding the procurement process available and making all PPP opportunities open to all interested parties. This includes access to all necessary information, with open and competitive procurement regimes. Some of the research respondents said that there

should be no room for monopoly, and stated that monopoly usually leads to rebellion, therefore there should be room for competition to avoid consequent resentment.

Following the identification of the eligible contractor, the project governing structure should be determined: A Special Purpose Vehicle (SPV) should be set up at this stage of the process. An SPV is a commercial company usually established to undertake a PPP project. The Constituted SPV will avoid a one-man company system and solve the problem of the separation between the users and the design team because it will include all the stakeholders of the project: the client representatives, the private company and the investors as well as the design team. It will also minimise the level of bureaucracy, political interference and the likelihood of the project being abandoned will be minimised. Figure 9.3 shows the PPP project structure.

One of the causes of failure in PPP is believed to be a poorly defined governance structure. Therefore, a good governance structure must be put in place at this stage of the process. PPP, as a cooperation between the government and the private sector, involves the sharing of risk between the two parties, therefore the PPP governance needs to be properly examined, because of the complexities of PPP projects and the partnership itself (van den Hurk and Verhoest, 2015). Governance refers to the structures by which PPP projects are set up, coordinated and run, which includes the process of making decisions. Therefore, the decision makers and the timeframe for decisions to be made are determined during the process of setting up the appropriate governance structure.

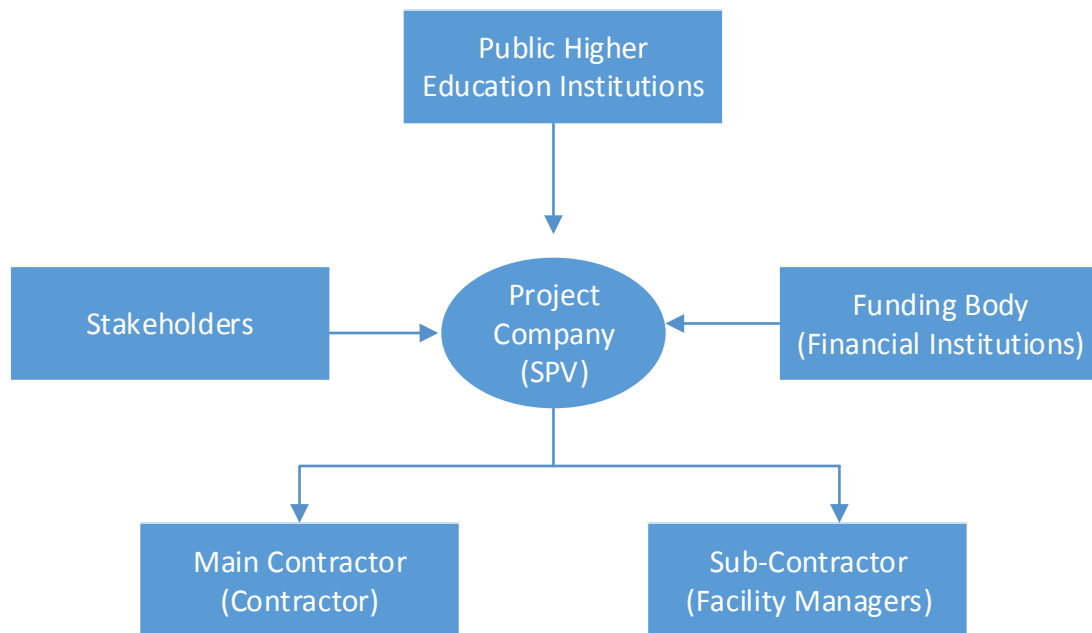


Figure 8.3: PPP Project Structure

Furthermore, at this phase of the process, the payment mechanism of the project should be determined. The fact that direct returns on investment can be achieved for economic infrastructures such as student hostels, where students currently pay directly to the private companies, with the institutions monitoring the agreed accommodation fees, does not mean this can be feasible for social infrastructures. With facilities such as science laboratories or libraries, the payment mechanism cannot be the same, as the students are not able to pay directly to the private companies. As social infrastructures are not able to generate revenues directly from the users, they cannot be user fee-based.

Consequently, to determine appropriate payment mechanism, demand/usage risk need to be properly allocated; it is either that the contractor bears the demand risk, or the institution does, or both could share the risk of demand. This should be properly spelt out at this phase of the process. One of the core principles of PPP is that risk is transferred to the party that is best able to manage it (Akintoye et al., 1999). PPP projects have several types of risk associated with them, and they can affect the project at any stage, right from the planning, design, construction and even operation stages (Li et al., 2001). According to Li et al. (2001), there are three levels of risk in PPP; *Macro*, *Meso*, and *Micro* levels. Demand risk is said to be at Meso level. Meso level risks are said to be implementation problems. Consequently, the demand/usage risk is associated with the implementation of the project.

It is therefore recommended that if the demand risk is to be taken up by the institution, then, the availability payment method should be adopted, while if it is assigned to the contractor, then usage payment should be adopted; however, if the demand risk is going to be shared by both parties, then usage payment should also be adopted. These forms of payments are based on Unitary Charge system: the unitary charge will help the contractor to earn a profit and maintain the facility at an acceptable performance level. It will also help to finance new infrastructure.

According to KPMG (2009), an availability payment is a form of compensation to the contractor for both capital and non-operating costs. It is also said to be widely acceptable by developers and encourages competition and generates efficiencies. The contractor is therefore entitled to receive the following payments following commencement of operations: A Base Availability Payment, an Operational Flexibility Payment to compensate for rolling stock and infrastructure maintenance, and a specific payment in relation to Energy Costs, while the Availability Payment is subject to deductions for service failures. Following the determination of the governance structure and the setting up of an SPV, the payment mechanism is determined. The construction work then commences.

#### **iv. Operational Phase**

At the operational phase, it is expected that the construction work would have been completed, the institution then put the facility into use. During the operational phase; if the Availability Payment is the agreed payment method, then the institution pays the contractor for the performance and availability of the facility. If Usage Payment is agreed upon, then the institution makes payments to the contractor based on the usage of the facility. Taking into consideration that PPP projects are prone to inflation risk, to cover for inflation, an indexation mechanism must be determined from the onset. During the period of construction, no payment is made to the contractor until the completion of the project; hence the unitary or usage payment will not commence until the operational phase.

In the operational phase, the contractor's duty is to maintain the facility and put it in a good and useable standard for the institution, while the institution pays for the performance of the availability of the facility if the demand risk is passed to the higher institution. However, if the demand risk is shared by both the institution and the contractor, the usage payment is made to the private sector company in the same way as if the demand risk is passed to the contractor.

#### **v. Project Maturity Phase**

In the project maturity phase, the project is said to be matured as the concession period will have come to an end; at this stage, the final accounts are prepared, and the asset is transferred to the institution.

In conclusion, one of the six principles of good governance in PPP is Efficiency: *the extent to which the human and financial resources are applied to a PPP project without any form of wastage*. One of the problems associated with PPP in Nigeria is that the stakeholders have very low levels of experience in PPP procurement systems. The participants in the study pointed out the need to properly educate the stakeholders on PPP procurement methods, and the government has already started training staff on PPP procurement method as stated by one of the participants. Therefore, the institution should endeavour to minimise wastage, and train staff on the PPP procurement route.

UNECE (2014) also advocates Decency: *the level at which the rules and regulations of the procurement process are observed*, as one of the principles of good governance in PPP. The role of the institution in a PPP project must be properly defined and the institution must clearly define the objectives of the project, which should be monitored from project inception to completion. The effectiveness of this model will depend on the level to which it been strictly adhered. The literature review and the exploratory survey conducted reveal that the level of decency in the Nigeria PPP system is very low. Therefore, if the higher institutions want to have a successful PPP system, they should abide by the principles of good governance and adhere strictly to the processes identified in the model.

#### **8.4 Model Evaluation**

It was previously mentioned in the methodology chapter that this research is based on the six stages of constructive research approach as identified by Kasanen et al. (1993) and



Oyegoke (2011). Thus, having completed the third of the stages, which is to *construct the solution*, the next stage is to demonstrate that the model works, i.e. *demonstrate that the solution works*; hence the need to evaluate the developed model. The purpose of the evaluation is to ascertain the suitability of the developed model. It was also previously mentioned in the methodology chapter that the constructed solution, i.e. the model, cannot be put to use in this case, based on the fact that construction projects usually take long time to complete and as such cannot be completed within the study period, consequently, to achieve this stage of the research, the applicability of the developed Model was evaluated by experts. This section presents the evaluation process and the findings of the evaluation.

To evaluate the applicability of the developed model, that is, to be able to determine if the solution works, it is necessary to determine the appropriate evaluation method to use. In previous research work conducted in construction project management, in which models or frameworks were developed, both a face validity approach and a scoring model approach were combined for the validation or evaluation of the developed framework/model. Following this practice, this model was evaluated by combining both face validity and the scoring model approach. The process by which the model was evaluated, and the result of the evaluation are presented in this section.

To evaluate the Model, 16 self-completion questionnaires were administered to experts; 11 of the experts completed and returned the questionnaires. All the participants were based in Nigeria. Five PHEIs and six contracting/consulting firms were contacted. A formal letter was sent to them via email, and after accepting the invitation to evaluate the model, the Model Evaluation Materials were then sent to them via email. The evaluation materials included an introduction letter, a consent letter, a summary of the research findings/recommended solutions, the developed model, and the questionnaire. A copy of the introduction letter is attached as Appendix 8.2, the consent letter as Appendix 8.3, the summary as Appendix 8.4 and the questionnaire as Appendix 8.5. Table 8.4 shows the respondents' background information. Table 8.4 shows that most of the participants had work experience of 21 years and above, which is reasonable and reliable for evaluating the Model.

Table 8.5: Model Evaluation Respondents' Background Information

Profile of Respondents	Frequency	Percentage
<b><i>Type of Organization</i></b>		
Contracting	4	36.40
Consulting	2	18.18
Academic (public higher institutions)	5	45.45
<b>Total</b>	<b>11</b>	<b>100</b>
<b><i>Highest Academic Qualification</i></b>		
PhD	2	18.18
MTech/MSc/MBA	6	54.54
BTech/ BSc	3	27.27
<b>Total</b>	<b>11</b>	<b>100</b>
<b><i>Profession</i></b>		
Architect	4	36.40
Civil Engineer	2	18.18
Builder	1	9.10
Quantity Surveyor	3	27.27
Estate Surveyor & Valuer/Lecturer	1	9.10
<b>Total</b>	<b>11</b>	<b>100</b>
<b><i>Designation</i></b>		
MD/CEO	4	36.40
Director	4	36.40
Senior Architect	1	9.10
Builder II	1	9.10
Lecturer	1	9.10
<b>Total</b>	<b>11</b>	<b>100</b>
<b><i>Years of Experience</i></b>		
1-5 years	0	0.00
6-10 years	2	18.18
11- 20 years	1	9.10
21-30 years	5	45.45
31 years and above	3	27.27
<b>Total</b>	<b>11</b>	<b>100</b>

#### 8.4.1 Face Validity Approach

According to Bryman (2012), a researcher must at least determine that a newly developed measure has a face validity. This is to determine that the developed measure reflects the intended content. This could be established by contacting experts to be the judge of the developed measure (Bryman, 2012). Face validity is important for the credibility of the measure and for the satisfaction of the researcher (Cameron and Price, 2009).

Consequently, the participants were asked to rate the clarity and the logical structure of the model. Most of the respondents agreed that the structure of the model is good and clear and that the model is suitable for adoption in the HE infrastructure sector.

#### 8.4.2 Model Scoring Approach

In the questionnaire, the respondents were asked to rate the attributes of the model based on a scale. They were asked to indicate their overall assessment of the developed model by assessing the *Logical structure of the Model*, *Clarity of the Model*, *Comprehensiveness of the Model*, *Practicability of the Model*, *Efficiency of the Model* and the *Applicability of the Model to Higher Education Infrastructure Development*, using the following scale where: 1 = Poor, 2 = Below Average, 3 = Average, 4 = Above Average, 5 = Excellent. Figure 8.5 shows the result of the evaluation based on the scoring. This section presents the result of the assessment of the model by the participants. Table 8.5 and Figure 8.5 show the rating of the overall assessment of the model.

Table 8.6: Overall Assessment of the Model

Qualities	Score					Mean
	1	2	3	4	5	
Logical structure of the Model	0	0	2	6	3	4.09
Clarity of the Model	0	0	0	8	3	4.27
Comprehensiveness of the Model	0	0	2	8	1	3.90
Practicability of the Model	0	0	1	9	1	4.00
Efficiency of the Model	0	0	0	8	2	4.09
Applicability of the Model to Higher Education Infrastructure Development	0	0	0	7	4	4.36

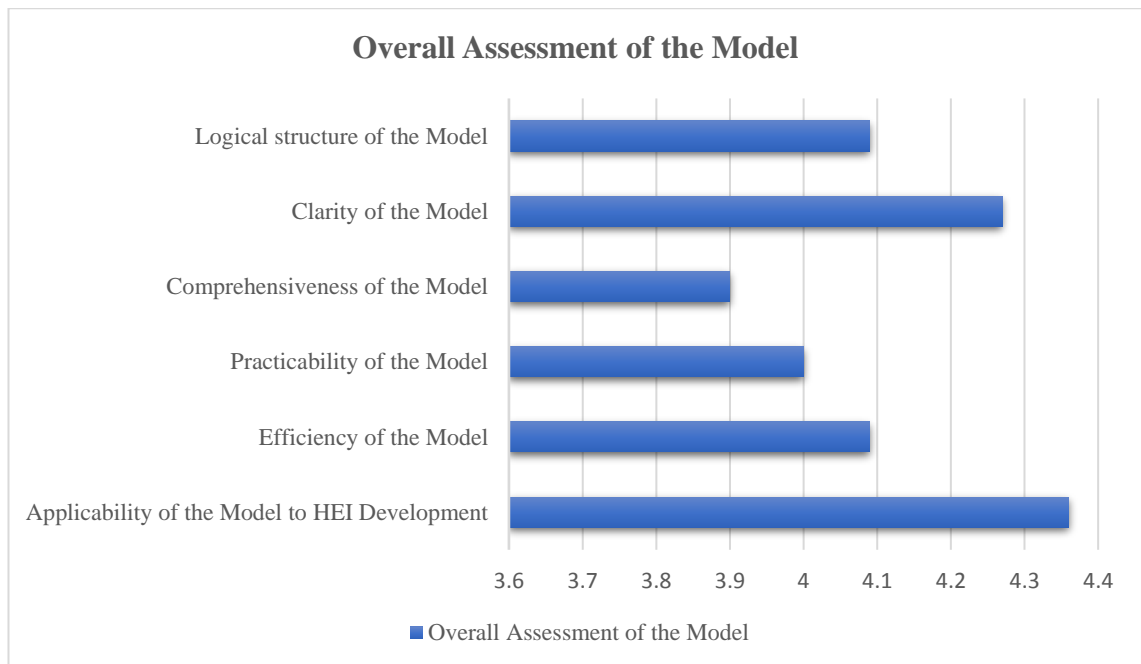


Figure 8.1: Overall Assessment of the Model

From the overall assessment, the minimum score was 3.9 and the highest is 4.36

This is related to the acceptance of the Model. Logical structure of the Model scored 4.09 which shows that the Model is well structured, also, to establish if the Model is clear enough for users, they were asked to rate the clarity of the Model and this scored 4.27 which means the Model is clear and will be easy to understand by users without needing to seek help for clarifications. Furthermore, the applicability of the Model in HE infrastructure development scored 4.36, which shows that majority of the participants believe the Model is applicable to the HE infrastructure sector.

The participants were also asked to identify any limitations or weaknesses in the model and possible areas of strength. Some the participants suggested that any change in the government of the institution might affect the partnerships. However, since there is a project company set up for the purpose of this partnership, all legal arrangements would have been put in place to avoid this. Most of them also agreed that the model will be very efficient if all stakeholders are fully informed. Another respondent commented that this is a very good model for Nigeria, based on the current situation of the nation.

On the possible weaknesses of the Model, some participants still believed that the model could be affected by bureaucratic delays, and some suggested that there should be stop points at each stage, at which, if things do not go well, the previous phase could be revisited without affecting the next phase of the process.

The comment below is from one of the experts who evaluated the model:

*'I reason along to agree that the model has given a roadmap and pathway for an effective PPP for infrastructure procurement in Nigerian tertiary institutions. However, it is beyond our willingness, because a legislated policy is necessary, specifically for such, different from general public procurement policy. I think. But this is a good step for something better in respect of PPP'*  
(Dr Job Taiwo Gbadegesin).

### **8.5 Model Validation**

The fifth stage of this research is to show the theoretical connections and research contribution of the solution (Model). To achieve this, the research was validated theoretically through the previously identified research theory presented in Chapter Seven. The underpinning theory; the contribution of the research is validated by the research theory: Collaborative Governance Theory.

As previously discussed in the theoretical framework chapter (Chapter Seven) UNECE (2004) defines good governance as *rules, processes and behaviour that affect the way in which powers are exercised, particularly as regards to openness, participation, accountability, effectiveness and coherence*. The six principles of good governance in PPP are *participation, decency, transparency, accountability, fairness, and efficiency*.

#### **Participation**

Participation is the level of involvement of all stakeholders throughout a project's life cycle. A stakeholder is anyone who can be affected or can influence the achievement of an organisation (Aaltonen et al., 2008, Chinyio and Olomolaiye, 2010), and stakeholders' perspectives differ from each other (Aaltonen et al., 2008, Chinyio and Olomolaiye, 2010). The ability to achieve proper stakeholder management is said to be crucial to the success of any PPP project (El-Gohary et al., 2006). Thus, the stakeholders of a construction project, such as the users, customers and members of the community are just as important as the clients of the project (Smith et al., 2001).

Nederhand and Klijn (2018), in their article titled *Stakeholder Involvement in Public-Private Partnerships: Its Influence on the Innovative Character of Projects and on Project Performance* examined the extent to which the involvement of stakeholders in PPP projects affect the outcome of the project. They found that when stakeholders are involved in a PPP project, there is a positive effect on the PPP project in terms of innovation, nevertheless, it will not necessarily lead to a better performance of the project.

### **Decency**

This is the level at which the rules and regulations of the procurement process are observed. The role of the government in a PPP project must be properly defined; moreover, the government must institute a robust legal regulatory environment, with clearly defined objectives which can be monitored from project inception to completion. The effectiveness of the regulatory frameworks is a critical factor in any arrangement for PPP projects, so these regulations should be strictly adhered to. The literature review and the exploratory survey conducted reveal that the level of decency in the Nigeria PPP system is very low; therefore, if Nigeria wants to have a successful PPP system, it should abide by the principles of PPP good governance. The government should also make sure that the procurement procedures are followed to the letter. One of the respondents noted that sometimes the contract agreement is poorly prepared, noting that some contracts are awarded without following the rules and regulations, thereby awarding contracts to those who are not qualified to carry out the jobs. In this case, the contract award process lacks a form of decency.

### **Transparency**

Government has to be transparent in the procurement process during the selection processes, take into account the interests of the stakeholders (UNECE, 2004). Corruption is seen as one of the challenges associated with PPP in the country; the participants believed that if corruption is reduced to the minimum, PPP will thrive in Nigeria

According to (UNECE, 2008), transparency in PPP is making all the information regarding the procurement process available, and making all PPP opportunities open to all interested parties; this includes access to all necessary information, with open and competitive procurement regimes. UNECE (2008) proposed an independent monitoring authority that can investigate the procurement process.

### **Accountability**

This is the extent to which political actors take responsibility for their words and actions. In undertaking a PPP project, there is a need for the government to know whether the PPP project will achieve Value for Money (VfM), with the goals of the project clearly defined (UNECE, 2008). Government should also make sure that the procurement procedures are followed to the letter. Projects are usually not properly planned, and in some cases, such projects end up being abandoned, as a result of inadequate planning (both technical and financial), (Ewa, 2013) opined that most projects are abandoned because they are conceived based on inappropriate reasons, conflicts of interest. Some respondents believed that the government is not accountable in the PPP process and that the government is not able to provide the private sector the needed security by protecting the rights of the investors and promoting efficiency in the enforcement of contracts.

### **Fairness**

This is the level at which rules and regulations are applied equally to all in the society. Equal opportunities should be accorded to every individual who is interested in bidding for any PPP contract in the country. The procurement process should also be fair and open. There should also be clarity in the process. One other challenge currently faced by PPP projects in Nigeria is the fact that wrong procurement routes are chosen for projects, and the wrong partners are engaged in the delivery of the projects because expert advice is not sought; moreover, partners are engaged based not on experience and capability but on nomination by political leaders.

### **Efficiency**

Efficiency is the extent to which the human and financial resources are applied on a PPP project without any form of wastage; one of the problems associated with PPP in Nigeria is that the stakeholders have very low experience in PPP procurement system. The participants highlighted the need to properly educate the stakeholders on PPP procurement methods, and government has already started to train staff on PPP procurement methods, according to one of the participants.

### **Chapter Findings and Summary**

This chapter has explained the solutions proffered to the identified problems, the developed Model and the process that culminated in the developed Model was also

explained in this chapter. Furthermore, the developed Model was validated by experts, and the validation process was also presented in this chapter. The next chapter is the concluding chapter where the contribution to knowledge, recommendation for further studies are presented and conclusions are made.



## Chapter 9: CONCLUSIONS AND RECOMMENDATIONS

### 9.1 Introduction

This research has explored various aspects of PPP in the Higher Education Infrastructure sector. This was achieved by conducting a systematic literature review, an exploratory survey and three case studies in a bid to identify challenges associated with PPP in the Nigerian HE infrastructure sector and to proffer solutions to the problems. This culminated in the development of a PPP Model viable for the procurement of social infrastructure in the HE infrastructure sector.

This chapter summarises the findings by identifying to what extent and how the research has been able to meet with the objectives of the research. Recommendations for further research and conclusions are also presented in this chapter.

### 9.2 Meeting the aim and objectives of the study

The process by which the aim and objectives of the research were achieved are explained in this section. As previously stated in Chapter One of this thesis, the aim of this research is to **develop a Public Private Partnership (PPP) Model suitable for the delivery of physical infrastructure in the Nigerian Higher Education Infrastructure Sector.**

Although there is an existing framework designed for all PPP projects in Nigeria, there is no specific Model designed for PPP in the HE infrastructure sector. The existing framework was reviewed in relation to the HE infrastructure sector, taking into consideration that HE infrastructures are not economic infrastructures in which direct return on services is expected. The objectives of the research are:

- To investigate infrastructure needs in Nigerian Public Higher Education institutions in order to ascertain the level of inadequacy.
- To assess the use of PPP in the delivery of Higher Education infrastructure in Nigeria in order to determine the extent of its application.
- To identify and highlight the challenges associated with the traditional method of procuring Higher Education infrastructure in order to proffer solutions to the identified issues.

- To analysis PPP processes applied to higher education infrastructure and services in three developed countries in order to identify opportunities and applicable attributes that can help improve PPP initiatives in Nigeria.
- To identify and highlight the challenges associated with PPP in the Higher Education infrastructure sector in order to proffer solutions to the identified issues.
- To develop a Model for PPP in the Higher Education infrastructure sector, in order to enhance collaboration between the private and the public sectors.

Table 9.1: Research Objectives Achieved

OBJECTIVES	OBJECTIVE 1	OBJECTIVE 2	OBJECTIVE 3	OBJECTIVE 4	OBJECTIVE 5	OBJECTIVE 6
	To investigate infrastructure needs in Nigerian Public Higher Education institutions in order to ascertain the level of inadequacy.	To assess the use of PPP in the delivery of Higher Education infrastructure in Nigeria in order to determine the extent of its application.	To identify and highlight the challenges associated with the traditional method of procuring Higher Education infrastructure in order to proffer solutions to the identified issues.	To analysis PPP processes applied to higher education infrastructure and services in three developed countries in order to identify opportunities and applicable attributes that can help improve PPP initiatives in Nigeria.	To identify and highlight the challenges associated with PPP in the Higher Education infrastructure sector in order to proffer solutions to the identified issues.	To develop a Model for PPP in the Higher Education infrastructure sector, in order to enhance collaboration between the private and the public sectors.
ACTIVITIES	<p>A systematic literature review was conducted to explore the infrastructure needs in Nigeria PHEIs and to investigate the extent to which the private sector has partnered with the government in HE Infrastructure development.</p> <p>An exploratory survey was carried out by conducting semi-structured interviews with stakeholders to validate the findings of the literature review and to identify challenges faced by PPP in the HEI sector.</p>			Analysis of PPP processes in three developed countries (Canada, United Kingdom and United States of America) was conducted to identify opportunities and applicable attributes that can help in the process of proposing solutions to the identified problems.	<p>Case studies of three completed PPP projects in Nigeria HE infrastructure sector were conducted to gain further understanding of the problems in relation to individual projects.</p> <p>The existing process of PPP in the HE infrastructure sector was mapped out, critiqued to understand the shortcomings of the process and what need to be improved upon.</p>	A PPP Model is developed based on the outcome of all the activities carried out during the study.
REPORTED IN THE THESIS	Chapter 1,2,3, & 4			Chapter 3	Chapter 6	Chapter 9

Table 9. 1 shows the activities carried out to achieve each of the objectives of the research.

### **9.3 Summary of Findings and Conclusion**

The research found that public higher institutions in Nigeria are currently in need of infrastructure, most of the available ones are dilapidated and are not safe for teaching and learning. The lack of infrastructure is attributed to inadequate funding, lack of proper management of funds, as well as political involvement in the procurement processes. Consequently, because the Nigeria government is no longer able to fund infrastructure development as appropriate, the government has turned to public-private partnerships as an alternative procurement route to provide the needed infrastructures.

The study revealed that PPP is mostly seen in other sectors of the economy, and not so prominent in the development of HE infrastructures, the study finds that inadequate experience, political involvement, weakness in project preparation, engaging in projects that do not suit PPP, stakeholders' inexperience, bureaucracy, criticism by the public, and low level of stakeholders' participation are some of the problems associated with PPP procurement in Nigeria.

Also, PPP in the HE infrastructure sector is usually initiated by private sector companies in a form of unsolicited proposals, which does not allow for submission of innovative ideas from various contractors, and in some cases leads to poor partnership and sometimes abandoned projects. Consequently, this thesis suggests that Nigerian PHEIs should avoid unsolicited proposals for PPP projects until a certain maturity level is attained by the institutions. Moreover, to avoid projects being abandoned, the suitability of PPP for the project should be properly analysed before finalising on the choice of PPP as the procurement method.

It is also evident in the case studies conducted that most students and staff of the higher institutions preferred to be involved in the PPP infrastructure procurement process, as the end users of the infrastructures, therefore, it is proposed that relevant stakeholders are identified and engaged in the process. Collaboration with PPP stakeholders is of benefit in many ways, such as mutual gains and improved trust in other stakeholders. Moreover, the efficiency and effectiveness of the coordination of the project are enhanced, knowledge and information are acquired, and the legitimacy of project decisions is

improved upon. Furthermore, to avoid unrealistic proposals, as evident in the study, projects issues such as the; Viability, Benefits, Value for Money, and the Risks associated with the project should be fully analysed before going into any partnership.

The study also reveals that PPPs in the HE infrastructure sector usually lack proper governance structure, coupled with the problem of one-man business. It is therefore suggested that a Special Purpose Vehicle (project company) be set up from the inception of the partnership, this will provide a good governance structure, mitigate the problem of inaccessibility of project funds, and minimise the level of bureaucracy, reduce political interference and the likelihood of the project being abandoned will be minimised.

The uncertainty of demand and lack of a proper payment structure are some of the reasons why the private sector does not show interest in social infrastructure PPP procurement, hence the need to determine who takes on the demand risk and allocate this to the party that is best able to manage it. The study further suggests that demand risk is properly allocated, and the payment method determined at the inception of the partnership.

#### **9.4 Recommendations**

According to the current President of the Federal Republic of Nigeria, retired General Mohammadu Buhari:

*‘The nation has a huge infrastructure deficit for which we require foreign capital and expertise to supplement whatever resources we can marshal at home. In essence, increased engagement with the outside world is called for as we seek public-private partnerships in our quest for enhanced capital and expertise. This is the way of the new world for all countries in the 21st century’.*  
(His Excellency president Mohammed Buhari).

It is therefore recommended that PHEIs in Nigeria should look at stakeholders’ engagement/collaboration as the way forward for the provision of infrastructure through PPP. This will enhance stakeholders’ trust, compliance, and responsiveness. Consequently, based on this research study, the followings are recommended:

1. Stakeholders of any PPP projects should be properly identified and engaged in the procurement process from the inception of the projects, this will increase the level of stakeholders' participation, reduce criticism by the public, and the level of awareness of the stakeholders will be increased. Also, the technical staff of the institutions should be properly trained on the process of PPP, after which they should be sent on refresher courses, so as to keep them abreast with the current development in Public-Private Partnership.
2. Public Higher Institutions should always endeavour to set-up a good governance structure before the commencement of any PPP project, this will help to reduce the level of bureaucracy, and improve the briefing system.
3. The Source of funding PPP projects should be properly verified before the commencement of any project; setting up a special purpose vehicle (SPV) for the project will help to properly determine the source of fund from the inception of the project.
4. A Payment Mechanism should be properly designed, analysed and agreed upon before the commencement of any social, and academic PPP project; because these are not economic infrastructures and cannot be treated the same way with students' hostels.
5. Demand risk should be properly analysed, and agreement should be made on who should take on the demand risk before the commencement of any PPP project.
6. Where an unsolicited proposal is submitted by a private sector company for any PPP project, the proposal should be properly analysed in order to determine if PPP is suitable for the project or not, then the project must be properly analysed to identify the viability of the proposal in order to avoid unrealistic proposals

## **9.5 Contribution to Knowledge**

Since the introduction of Public Private Partnership to the infrastructure development sector of Nigeria economy, there has been published research on PPP procurement methods in Nigeria, mostly in the area of students' hostels, but procuring social infrastructure in the HE infrastructure sector is under-researched and not well represented

in the body of knowledge. Hence this research has contributed to the body of knowledge by filling this gap. This research has also contributed to the body of knowledge in the following ways:

Firstly, this research has contributed to the construction management theory, by identifying and applying an existing theory as a lens through which the research problems were studied.

Secondly, the study developed a Model for the procurement of social infrastructure in the HE infrastructure sector through PPP, this is novel as there is currently no PPP Model specifically designed for the implementation of social infrastructure in the HE infrastructure sector. The developed Model provides a reliable approach by which Public Higher Institutions can partner with the private sector to procure social and academic infrastructures.

Thirdly, this study identified the problems associated with the PPP procurement route in the HE infrastructure sector and proffered solutions to the identified problems. In general, the research will help both local and international investors in partnering with the HE institutions, it will also be useful to the institutions themselves in partnering with the private sector companies.

## **9.6 Recommendations for Further Research**

Having identified the contribution of this research to knowledge, suggestions are hereby made for further studies as shown below:

- The developed Model is specifically developed for social infrastructure in the HE infrastructure sector, the research could be extended to other infrastructure sectors, as one of the participants suggested that the model could be used to procure hospital infrastructures. Therefore, a further study could be conducted to determine if a specific Model could be developed for the procurement of medical infrastructures. This is necessary as social and economic infrastructures cannot be treated the same way because of the differences in characteristics. A mixed method approached of research could be used to carry out the research.

- As some of the experts who evaluated the developed model were of the opinion that the payment mechanism should be more elaborate, therefore, more research should be conducted to further expounds on the payment mechanism. A full payment mechanism could be developed specifically for the procurement of social infrastructure in the HE infrastructure sector. This can be achieved by developing a Financial Model.
  
- The developed Model is designed typically for solicited PPP projects in the HE infrastructure sector; further research could be in the area of unsolicited PPP projects. This will help to identify problems if any, that are associated with unsolicited PPP proposals, and help to improve on the existing process where unsolicited proposals are submitted. A systematic literature review should be conducted to ascertain what is already known, and to identify existing problems, furthermore, case studies of completed unsolicited PPP projects should be conducted to identify shortfalls, after which solutions are proffered to the problem.

## **9.7 Concluding Remarks**

It is believed that the overall aim of the research which is to develop a Public-Private Partnership (PPP) Model suitable for the delivery of physical infrastructure in the Nigerian Higher Education Infrastructure Sector has been achieved.

There is a chance for the developed Model to be implemented if took to public higher institutions in Nigeria; especially if seminars are conducted among the staff of the Directorate of physical development of the institutions.



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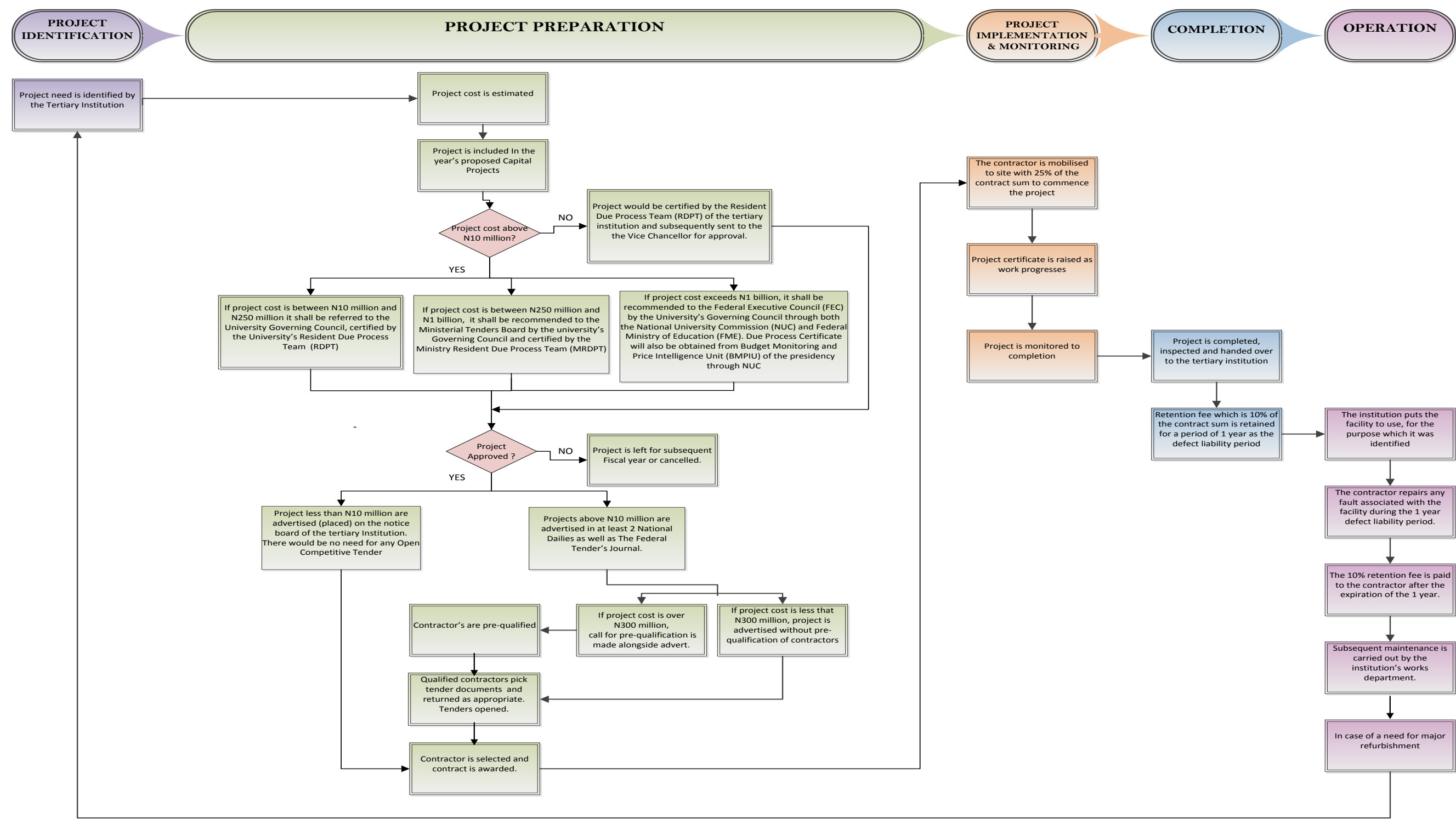
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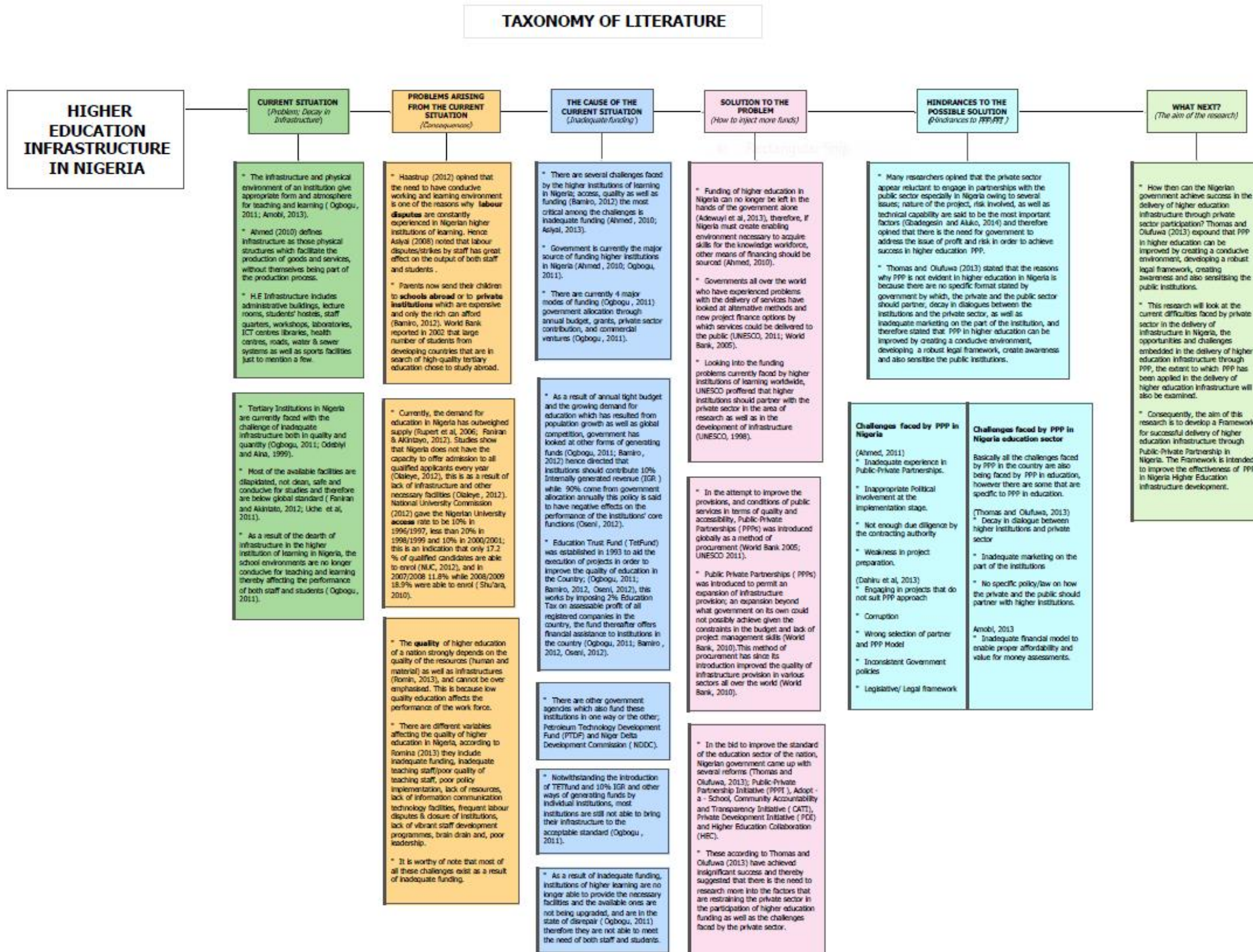
APPENDICES

Appendix 2.1: Schematic Diagram of the Traditional Procurement Process





## Appendix 4.1: Taxonomy of Literature



#### **Appendix 4.2: Introductory E-mail for Exploratory Survey**

Dear Sir,

I am a PhD student currently studying in the United Kingdom, my research is in the area of Private Sector participation in the delivery of Higher Education infrastructure in Nigeria.

I am a staff of National Open University of Nigeria (Directorate of Physical Development, Works & Services), currently on study leave.

I saw some of your research papers on the internet and also noted that you are a member of the BOT/Project Implementation and Housing Committee at Obafemi Awolowo University, Ile Ife, hence my interest in contacting you.

I am carrying out a pilot study in order to find the current problems associated with the provision of Higher Education infrastructure in Nigeria Public Higher Institutions.

This I would do via Telephone Interview.

As a member of the BOT/Project Implementation and Housing Committee at Obafemi Awolowo University, Ile Ife, and your experience will be very helpful at this stage of my work, therefore I would be very grateful if you could please participate in this study as one of my interviewees.

Your contribution to this research work will be highly appreciated.

I look forward to reading from you soon sir.

Kind regards.

Adebusola Ateloye (Mrs)

### **Appendix 4.3: Exploratory Survey Interview Questions for Contractors**

In the attempt to improve the provisions and conditions of public services in terms of quality and accessibility, PPP/PFI was introduced globally as a method of procurement. PPP/PFI presents a means of mobilising private funds to deliver public services whilst government manages the relationship via a negotiated PPP agreement. Consequently, the increasing need for Nigeria government to collaborate with the private sector to provide Higher Education infrastructure has necessitated this research.

1. As a contractor, has your organisation partnered with the Nigerian government in providing any infrastructures?
2. In what capacity
3. Could you please name such infrastructure procured using this particular process?
4. What stages are these projects at the moment?
5. Is there any Model developed for the implementation of these projects?
6. How successful were these partnerships?
7. PPP/PFI have received several accolades and criticism, especially in the area of value for money (VFM) and risk, what are your experiences with PPP, and lessons learnt.
8. What were the challenges faced during the process of financing these infrastructures?
9. What are your plans to mitigate these challenges on future projects?
10. It is obvious that the private sector is interested in economic infrastructure projects which can yield returns such as roads, ports and not in social infrastructures like schools, what do you think should be done in order to attract private investors to social infrastructures.
11. In your opinion, do you think that the private sector participation in the provision of higher education infrastructure in Nigeria is adequate especially when compared with the other parts of the world?
12. Do you have any other thing you would like to add, or any further comments, suggestions etc. you would want to make?

Thank you very much sir, for your time and for your contribution towards the success of this research study.

## **Appendix 4.4: Exploratory Survey Interview Questions for Higher Institutions**

### **Introduction**

Thank you very much sir, for agreeing to be interviewed on the issues which concern the provision of Higher Education infrastructure in Nigeria.

- The idea behind this research is to improve the availability & quality of infrastructures in our public higher institutions.
- I am currently carrying out a pilot study aimed at finding out the current situations and it will form part of the PhD research.
- It is important to inform you that all data and information provided by you will be treated with confidentiality, and you are not going to be identified or identifiable in anyway.

### **Questions**

1. How would you describe the current situation of infrastructures in the public higher institutions in Nigeria?
2. What is the process of providing infrastructure for your institution?
3. What are the challenges you currently face in the process of infrastructure development e.g. provision of laboratories, administrative buildings, libraries etc.?
4. It has been reported that one of the challenges currently faced by public higher institutions in Nigeria is inadequate funding, what is your institution doing to make sure that you are able to access enough funds for infrastructure development as at when a particular infrastructure is needed?
5. What are the kinds of partnerships/funding that have been considered by your institution for the provision of infrastructure?
6. Could you please name such infrastructure procured using this particular process?
7. Is there any Framework/Model developed for the implementation of these projects you have executed through PPP/PFI? (Could you please explain the process)

8. What stages are these projects at the moment?
9. How successful are/were these partnerships? (lessons learnt)
10. What were the challenges faced during the process of procuring these infrastructures?
11. What are your plans to mitigate these challenges on future projects?
12. It is obvious that the private sector is interested in projects which can yield returns such as student hostels, sports centres etc., what do you think should be done in order to attract private investors to provide these types of facilities?

Thank you very much, sir, for your time;

Do you have any other thing you would like to add to our discussions or any comments you would want to make?

We have come to the end of the interview session, thank you very much for your time and for your contribution towards the success of this research study.

#### **Appendix 4.5: Exploratory Survey Interview Questions for Federal Ministry of Education**

Some researchers opined that financing Higher Education in Nigeria is one of the most challenging issues in the domain of Higher Education; the costs of running institutions of Higher Education are exceptionally high. Despite this, the management and funding of Higher Education remains predominantly the role of government even with their declining resources;

1. How would you describe the current situation of infrastructures in public higher institutions in Nigeria?
2. In your opinion, do you think that public higher institutions in Nigeria have access to adequate infrastructure both in quality and quantity?
3. What is the process of providing infrastructure for public higher institutions in Nigeria?
4. What are the challenges currently faced in the process of Higher Education infrastructure development e.g. provision of laboratories, administrative buildings, libraries etc.?
5. With the knowledge and understanding that government can no longer single-handedly finance the development of higher institutions, has the government considered alternative financing arrangements in the provision of infrastructure for these institutions?
6. It is widely known that university infrastructures such as office buildings, libraries, lecture halls, etc. do not generate any returns for investors, unlike other sectors (Ports, Roads etc.) what do you think government can do to attract the private to this sector (education).
7. Are there any public tertiary institutions in Nigeria currently partnering with the private sector in infrastructure delivery? If yes could you mention some of them and what kind of facilities?
8. Is there any Framework/Model developed for the implementation of such project?
9. What are the challenges faced during the process of procuring these infrastructures (partnering arrangements)? What are the success stories?

10. What are your plans to mitigate these challenges on future projects?

Do you have any other comments, suggestions you would want to add to what has been said?

Thank you, sir.

#### **Appendix 4.6: Exploratory Survey E-mail Questions for Infrastructure Concession Regulatory Commission (ICRC)**

1. Is there any framework developed for higher education infrastructure apart from the general one?
2. Are there any tertiary institutions in Nigeria currently partnering with the private sector in the area of infrastructure delivery? If there are:
  - a. What stages are they in at the moment?
  - b. Are there any challenges these projects are currently facing?
3. Are there specific areas that the commission (ICRC) would want to research into especially in higher education infrastructure development through Public-private partnership?



Appendix 5.1: Thematic Matrix of the Findings of the Exploratory Survey

THEMATIC CHART OF THE FRAMEWORK ANALYSIS

CURRENT STATE OF INFRASTRUCTURE			CHALLENGES ASSOCIATED WITH HIGHER EDUCATION INFRASTRUCTURE PROCUREMENT				CURRENT SOURCES OF FUNDS				APPLICATION OF PPP TO H.E	CHALLENGES ASSOCIATED WITH PPP/PFI PROCUREMENT ROUTE				
<i>Aged, Obsolete &amp; Lack of Maintenance</i>	<i>Not Appropriate &amp; Acceptable</i>	<i>Poor &amp; Inadequate for existing Population</i>	<i>Corruption</i>	<i>Cumbersome Procurement Procedures</i>	<i>Inadequate Funding</i>	<i>Mismanagement of Funds</i>	<i>Donation &amp; Endowment</i>	<i>Red Govt Capital Appropriation</i>	<i>Internally Generated Revenue (IGR)</i>	<i>Intervention (Tetfund)</i>	<i>Student Housing through BOT Model</i>	<i>Autonomy</i>	<i>Funding</i>	<i>Corruption &amp; Transparency</i>	<i>Inexperience</i>	<i>Stakeholders</i>
Not appropriate, not up to standard when compared with comparable countries.					More funds should be allocated to education to facilitate access; government should improve and encourage private participation. Softer loans should be encouraged which will bring returns.							Student hostels are easy to provide through PPP but classrooms and laboratories are not as easy, unless self-governing; if there is a degree of autonomy.	Trusting the government, open and transparent, tackle corruption, improve governance, transparency.  Whatever structure is put in place, there should be no monopoly, which usually leads to hatred and rebellion, and there should also be competition to avoid resentment, by allowing ordinary people to participate.  Government should make the returns attractive but not too much, the facility should be decent and cheaper.		Whatever structure is put in place, there should be no monopoly, which usually leads to hatred and rebellion, and there should also be competition to avoid resentment, by allowing ordinary people to participate.  ... community to invest in the infrastructure, educate citizens..	
Yes there is need for something to be done; inadequate funding resulting to poor and inadequate facilities, there is a lot to be done because this has resulted into brain drain (study abroad) especially in the area of sciences. <u>This is a result of the deplorable state of the infrastructures, there is therefore need for total overhaul.</u>  Lack of maintenance culture...		...inadequate funding resulting to poor and inadequate facilities, there is a lot to be done... This is a result of the deplorable state of the infrastructures there is therefore need for total overhaul.  ...increase in total number of student enrolment has had great impact on the available facilities.	Management of the available funds, transparent project allocation, e.g. in awarding contracts and corruption are also responsible for the problems.  Funds are also provided through Tetfund but is there transparency in allocation? Is it effective?		Yes there is need for something to be done; <u>inadequate funding</u> resulting to poor and inadequate facilities...	Management of the available funds...	Aside government, infrastructures are provided by donors e.g. First Bank donated a lecture theatre, Henry Alex Duduyemi also donated a facility, ex-students also sow back to what they have been fed, by contributing to the system in terms of donation.		... 10% IGR could be used, mainly for the maintenance of the existing infrastructures.	Funds are also provided, through Tetfund, but is there transparency in allocation? Is it effective?			... there is need for a form of transparency. They should develop variants and models of partnerships, commercialisation such as labs, the private should operate after completion, provide the manpower, technologies and the rate reviewed annually.		There is need to educate the stakeholders ...  PPP is alien to the system in Nigeria; therefore we need a good institutional framework, corruption, mismanagement of funds, multi-culture (many ethnic groups), people are not looking at what can be offered/ achieved but looking at the choices based on religion, ethnic groups etc.  There should be proper education on PPP/PFI, families, organisations, religious groups should be educated.	
...maybe not at all, some have but most don't, <u>could be as a result of the age of the school, both Federal and State owned</u> . Some are better than others, ownerships of the schools also determine the quality, the older ones are well established <u>but the facilities are aged</u> ...  Government is trying to improve on the available infrastructure by injecting money through Tetfund to improve on the dilapidated ones.		In a nutshell it is inadequate, this is as a result of high population, whatever is available now is not adequate.			Funding is a major challenge.  Yes of course that is where public private partnership initiative comes in, that is PPP public private partnership initiatives <u>that is to say that government in recognition of the fact that it cannot single handedly fund these institutions</u> have this initiative that when we allow private partner to come in to partner with these institution in whatever area they want to.		Government provide infrastructure through annual budget, projects are categorised and also funded through Tetfund <u>as well as donations from individuals and cooperate bodies, when facilities are donated, they could be named after the person who donated it, depending on the agreement.</u>	<u>Government provide infrastructure through annual budget...</u>		... projects are categorised and also funded through Tetfund...  Government is trying to improve on the available infrastructure by injecting money through Tetfund to improve on the dilapidated ones.	... Just like hostels that there is an MOU...  ... If the institution could be paying the private directly. Though money may not come in like that of hostels, where the students are paying. It is easy to have an arrangement for a number of years and the full ownership can revert to the institution. I don't think anyone has come forth to say how can we partner in this area.		Guarantee by government, favourable to both parties, not just the party that wants to invest and recoup investment almost immediately.  ...by the time <u>maybe the corruption level is brought down</u> , knowing the nation and not the individual they will be more willing to come in and face the challenges and let the future be brighter.			
		The available infrastructure is not adequate for the current population of students.			Funding is the main challenge.		Through philanthropic donations, donor projects, e.g. USA donated a lift for the 5 Storey senate building, 500 seating capacity lecture theatre donated by Chief Alex Duduyemi.	Appropriation: The University present a budget and execute the projects using the provision of Public Procurement Act (PPA).	Internally Generated Revenue (IGR), funds generated from companies such as bakeries, water bottling companies, conference centres and bookshops.	Intervention from government agencies e.g. Tetfund (2 % Education Tax Fund).	When the institution was not able to meet up with the demand for student accommodation, a scheme was designed for Student Village for the duration of 30 years using build operate transfer (BOT).	There is the need for university autonomy, in order for them to work; a level of autonomy is needed. Universities should be free to reach out to partners.				
Infrastructures are currently not in good shape, they are not renovated as at when due, most of them are dilapidated and need upgrading. They are currently not adequate.		...currently not in good shape, they are not renovated as at when due, most of them are dilapidated and need upgrading. They are currently not adequate.			Funding is the major challenge, the available fund is not enough to cater for the needed infrastructures.			Funding is through Capital Appropriation...	Funding is through Capital Appropriation, <u>Tetfund, intervention and through Internally Generated Revenue.</u>	Funding is through Capital Appropriation, Tetfund intervention and through <u>Internally Generated Revenue.</u>			It might be very difficult for this kind of partnering to take place as <u>the developer will need to be sure of prompt payments of facilities provided and services rendered.</u>			
There is need for expansion, available facilities not matching the population which leads to aging and occasional break down.  The age of the facilities, population of the students result to high rate of dilapidation.  Power holding (government power supply) plus generator are not even adequate, the student hostels consume 60% of all the power supplied, overloaded infrastructure also leads to maintenance problems.  The water supply system is aged and in order for it to work to maximum capacity, it needs to be dredged, the last time it was done was 5 years ago.		There is need for expansion, available facilities not matching the population which leads to aging and occasional break down.  Hostel not sufficient, student population of about 35,000 with hostels designed for less than a quarter of the population.  Rooms designed for 3 students are allocated to between 6 and 8 students, 8 bed spaces are rearranged to accommodate 16 students.  In a nutshell increase in population which is about 3 times of the expected population results to facilities, electricity, water supply being over stretched.			In this situation, the university gives the land, provides access, water, electricity, security but because of inadequate funding, the university is only able to provide water to the mains and little power supply.		The University rely mainly on appropriation. The library development was done through Tetfund. Tetfund carry out regular development and usually spell out the area the fund will cover, usually capital projects, construction, rehabilitation.		The institution also get funding through government special intervention even with all these, the facilities are still not adequate for the population.  The library development was done through Tetfund. Tetfund carry out regular development and usually spell out the area the funds will cover, usually capital projects, construction, rehabilitation.	Interested developers wrote to the institution to provide student hostels through BOT model of PPP for 30yrs. 16 developers ranging from 40 to 100 bed spaces were interested in the university village.  Successful and commendable, some students even prefer to stay in the private hostels than the institution's, the private does not allow squatting but only official number of students in the rooms therefore comfort is not compromised unlike the institution's accommodation.	In this situation, the university gives the land, provides access, water, electricity, security but because of inadequate funding, the university is only able to provide water to the mains and little power supply.  Entering into agreement is no issue, <u>some couldn't complete the projects as at when due maybe because of funding, therefore they are not able to meet up with the construction period...</u>			...Protest from neighbouring community.		
The infrastructural facilities are inadequate and cannot sustain the current staff and student population of the institution. Most of the facilities are old and obsolete.		The infrastructural facilities are inadequate and cannot sustain the current staff and student population of the institution. Most of the facilities are old and obsolete.		... <u>long and cumbersome procurement procedures</u> , cost of procurement, lack of exposure of the most end users (lecturers, HODs) as to which equipment they actually need and constraint of limited land of landed	Inadequate funding...		Appropriate Schools Fees Public Private Partnership (PPP) Endowment and Alumni Support Outsourcing of the Business Activities of the institution.  A 200 bed capacity Postgraduate Hostel <u>donated</u> by a Alumni  A three floor extension to a Department <u>donated through Endowment</u>  A 200 capacity Auditorium built through Endowment drive.	<u>Through Federal Government funding in form of (i) Capital Appropriation (ii) Special Interventions through the Tertiary Education Trust Fund (Tetfund).</u>		Through Federal Government funding in form of (i) Capital Appropriation (ii) <u>Special Interventions through the Tertiary Education Trust Fund (Tetfund).</u>	A 400 bed capacity Hostel through PPP using Build, Operate and Transfer Method.	Many genuine developers find it difficult to source funds for the PPP projects.  A lot of developers are only interested in holding on to the land and use such allocations to obtain loans for other uses.	...Ill prepared agreements.  Review the law that limited lease of University land to only 21 years. Most Business plans show that the investment may not be fully amortised within a period of 21 years.	Lack of understanding of the meaning of PPP/BOT. ...  Already sending procurement and legal officers on training of PPP/BOT projects. Also sensitising the public on the difference between a Government Contract and a PPP/BOT Development Projects.	Lack of understanding of the meaning of PPP/BOT. Ill prepared agreements.  ...others do not adhere to the terms of agreement resulting in unnecessary conflicts.	

## Appendix 6.1: Case Study Introduction Letter

United Kingdom | Dubai | Malaysia



**The Director**  
Physical Planning Unit  
University of Ilorin  
Ilorin  
Kwara State  
Nigeria

26th June 2017

Dear Sir,

**REQUEST FOR INTERVIEW:**  
**Higher Education Infrastructure Development through Public Private Partnerships**

I am a research student at Heriot-Watt University, Edinburgh, United Kingdom under the supervision of Dr Graeme Bowles and Dr Adekunle Oyegoke. My research is in the area of Private Sector Participation in the delivery of Higher Education Infrastructure (HEI). The overall thrust of the study is to use collaborative governance as the underpinning theory in developing an effective Model for HEI Public Private Partnership (PPP) projects.

During the first stage of the research, a review of the existing process of PPP in the HEI sector was carried out with the view to improve upon it, and findings indicate governance process as the fundamental challenge.

Consequently, the aim of this stage of the research is to assess the impact of collaborative governance on PPP projects in the HEI sector; *this will be achieved by determining if collaborative governance is related to:*

- *the performance of partners*
- *the quality of the relationship of stakeholders*
- *the outcome of PPP procurement process*

Case studies of three (3) completed PPP projects from three (3) different public Higher Institutions in Nigeria will be conducted. Based on the available information, your institution has partnered with the private sector in providing student accommodation; therefore, your institution has been identified as a potential case study that would greatly benefit the research.

I am by this letter requesting that you kindly spare between 30 to 45 minutes of your time for one on one interview to share your experiences and views on any PPP project carried out by your institution.

Be assured that the data collected will be kept confidential and used purely for academic purposes; this study has been reviewed and has received ethics clearance through the office of research ethics at Heriot-Watt University. A copy of the summary report will be made available to you if required.

Thanking you, in anticipation of your favourable response.

Kind regards

Mrs. Adebisola Ateloye  
PhD Research Student

**ACKNOWLEDGEMENT**

OFFICE OF THE DIRECTOR  
Physical Planning Unit  
University of Ilorin,  
P. M. B, 1515, Ilorin.

14/8/17 Dr Graeme Bowles  
Supervisor

**School of Energy, Geoscience, Infrastructure and Society**

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*Heriot-Watt University is a Charity registered in Scotland, SC000278*

## **Appendix 6.2: Case Study Interview Questions for Staff of Higher Institutions**

### **Introduction**

Thank you very much for agreeing to be interviewed on the issues which concern the provision of infrastructures in Nigeria public Higher Institutions.

Just a little introduction here:

- This interview will form part of my PhD research, and be assured that the data collected will be kept confidential and your institution or individual will not be identified in the thesis or in any report or publication based on this research. A copy of the summary report will be made available if required.
- I also assure you that this study has been reviewed and received ethics clearances through the office of research ethics at Heriot-Watt University.
- Finally, this interview will be recorded, and a transcript will be produced, if you do not wish that a record of this be produced please let me know.

Your contribution to this research work will be highly appreciated.

Thank you for your time.

Adebusola Ateloye

PhD Research Student

## **Semi -Structured Interview Questions for Higher Institution Staff**

As part of the research a few personal information is needed from you please:

- Full Name:
  - Age range:
  - Profession:
  - Designation:
  - Highest Academic qualification:
  - Years of experience:
  - Email Address:
1. Are you aware of the introduction of Public Private Partnership (PPP) practices to Higher Education sector?
  2. Has your institution been involved in any PPP project?
  3. Please name the project
  4. Did you participate in the process?
  5. In what capacity?
  6. What is the concession period?
  7. What year of the concession is the project at now?
  8. Could you please give a brief summary of the process of this collaboration?
  9. In your opinion, would you say that the asset delivered was to contractual specifications and reflect the deal that was negotiated?
  10. Who were the stakeholders of the project?
  11. How were the stakeholders identified?
- Where 1 is poor and 5 is very good:***
12. On scale 1 to 5, how would you rate the level of participation of the stakeholders
  13. On scale 1 to 5, how would you rate the level of satisfaction of the stakeholders?
  14. Were there any political interferences?
  15. If yes, on scale 1 to 5 could you please rate the level of political interferences on the project.
  16. What major challenges and difficulties did you encounter during the procurement process?
  17. Did you experience oppositions from any; such as stakeholders' oppositions?
  18. In what form?
  19. How did you mitigate them?

20. What effect does stakeholders' opposition have on the project?
21. What prevention measures have you put in place to prevent future occurrences of such oppositions?
22. In your opinion, what effect does stakeholders' participation have on the outcome of the project?

We have come to the end of the interview; do you have any comments or further contribution to this research?

Thank you very much for your time.

## **Appendix 6.3: Case Study Interview Questions for Private Sector**

### **Introduction**

Thank you very much for agreeing to be interviewed on the issues which concern the provision of infrastructures in Nigeria public Higher Institutions.

Just a little introduction here:

- This interview will form part of my PhD research, and be assured that the data collected will be kept confidential and your institution or individual will not be identified in the thesis or in any report or publication based on this research. A copy of the summary report will be made available if required.
- I also assure you that this study has been reviewed and received ethics clearances through the office of research ethics at Heriot-Watt University.
- Finally, this interview will be recorded, and a transcript will be produced, if you do not wish that a record of this be produced please let me know.

Your contribution to this research work will be highly appreciated.

Thank you for your time.

Adebusola Ateloye  
PhD Research Student

### **Semi-Structured Interview Questions (Private Sector)**

As part of the research a few personal information is needed from you please:

- Full Name:
  - Age range:
  - Profession:
  - Designation:
  - Name of your organization:
  - Type of establishment: i.e. contracting, consulting etc.
  - Highest Academic qualification:
  - Years of experience:
  - Email Address:
1. Are you aware of the introduction of Public Private Partnership (PPP) practices to Higher Education sector?
  2. Has your organization partnered with any institution to provide any infrastructure?
  3. Please name the projects/locations
  4. Did you participate in the procurement process of any?
  5. In what capacity? (your role)
  6. What is the concession period?
  7. Could you please give a brief summary of the process of this collaboration?
  8. What year of the concession is the project at now?
  9. What motivated your interest in the HEI sector
  10. What do you consider as the most challenging aspect of the project
  11. How different would you have preferred this concession?
  12. Who were the stakeholders of the project?
  13. How were the stakeholders identified?
- Where 1 is poor, and 5 is very good:***
14. On scale 1 to 5, how would you rate the level of participation of the stakeholders
  15. On scale 1 to 5, how would you rate the level of satisfaction of the stakeholders (especially students and staff of the institution)
  16. On scale 1 to 5 please rate the level of political interferences on the project  
Were there any?

***Where 1 is poor and 5 is very good:***

17. On scale 1 to 5, would you say that the terms of the agreement were strictly adhered to?
18. Did you experience any opposition from any quarter? **Yes or No**
19. If yes, please mention any opposition experienced.
20. In your opinion, what effect does stakeholders' participation/involvement have on the outcome of the project?

We have come to the end of the interview; do you have any comments or further contribution to this research?

Thank you very much for your time.



## **Appendix 6.4: Case Study Questionnaires: Students**



### **Public-Private Partnerships (PPP) for Higher Education Infrastructure**

#### **SELF-COMPLETION QUESTIONNAIRE FOR STUDENT**

Dear Student,

Kindly spare between 15 to 20 minutes of your time to complete this questionnaire on Public-Private Partnerships (PPP). This is part of a PhD research work and it is aimed at understanding your views as a stakeholder on the PPP projects in your institution.

Be assured that the data collected will be kept confidential and used purely for academic purposes.

Thank you.

A handwritten signature in black ink, appearing to read "Adebunola Ateloye".

Mrs Adebunola Ateloye

PhD Research Student

## SELF-COMPLETION QUESTIONNAIRE FOR STUDENT

### SECTION 1: BACKGROUND INFORMATION

1. Name: *(optional)*.....
2. Email Address: *(optional)*.....
3. Institution:.....
4. Faculty:.....
5. Department:.....
6. Level of Study *(Please tick as appropriate)*.  
☐ Diploma(ND/HND)/Cert.  
☐ Undergraduate (BSc/BTech)  
☐ Postgraduate (MSc/MTech)  
☐ Postgraduate (PhD)
7. What age bracket are you? *(Please tick as appropriate)*.  
☐ 16-25 Years  
☐ 26-35 Years  
☐ 36-45 Years  
☐ 46 years and above
8. Gender *(Please tick as appropriate)*.  
☐ Male  
☐ Female
9. Where do you live? *(Please tick as appropriate)*.  
☐ On - campus  
☐ Off- campus
10. If off-campus, why have you decided to stay off- campus?.....  
.....

## SECTION 2:      **ASSESSING STAKEHOLDERS' SATISFACTION WITH THE PPP PROJECT**

1. Do you understand what Public Private Partnership (PPP) means?  
(Please tick as appropriate).  
☐ Yes  
☐ No
2. Are you aware of the introduction of Public Private Partnership (PPP) practices to the Education sector? (Please tick as appropriate).  
☐ Yes  
☐ No
3. Are you aware of any Public Private Partnership (PPP) projects embarked upon by your institution? (Please tick as appropriate).  
☐ Yes  
☐ No
4. If yes, please name the project.....  
.....
5. Do you use the facility/services? (Please tick as appropriate).  
☐ Yes  
☐ No
6. If yes, for how long have you been using the facility/services? (Please tick as appropriate).  
☐ 1-5 years  
☐ 6-10 years  
☐ 10 years and above
7. How often do you use the facility/services? (Please tick as appropriate).  
☐ Every day  
☐ Once a week  
☐ Once a Month  
☐ Once a year
8. What is your general level of satisfaction with the facility/services?  
(Please tick as appropriate).  
☐ Very Satisfactory  
☐ Satisfactory  
☐ Fairly Satisfactory  
☐ Not Satisfactory  
☐ Indifferent
9. Were you in anyway involved in the process of the procurement of the facility?

*(Please tick as appropriate).*

☐ Yes

☐ No

10. If yes, in what capacity?.....

11. If no, would you have preferred to be involved in making decisions that concerns the project? *(Please tick as appropriate).*

☐ Yes

☐ No

12. Please explain reason for your choice in question 10.....

.....

13. In your opinion, would you say that your interests/needs were fully considered during the development of the facility? *(Please tick as appropriate).*

☐ Yes

☐ No

14. Please explain the reason for your choice in question 12.....

.....

15. Would you have preferred to be consulted for your opinion on what facilities are needed on campus before your institution embarks on any project? *(Please tick as appropriate).*

☐ Yes

☐ No

16. Do you think it will make any different if students of the institution are involved in the process of procuring facilities on campus? *(Please tick as appropriate).*

☐ Yes

☐ No

17. Could you please give reason for your response to question 16.....

.....

18. In what capacity should students be involved in the institution's PPP project development?.....  
 .....  
 .....

19. Please give reason for your answer in question 18.....  
 .....  
 .....

20. Please Indicate your level of satisfaction with each of the features of the facility shown in the table below.

Where:

[ 1 ] Indifferent

[ 2 ] Not Satisfactory

[ 3 ] Fairly Satisfactory

[ 4 ] Satisfactory

[ 5 ] Very Satisfactory

(Please tick as appropriate).

S/No	Aspects of the facility	Rating				
		1	2	3	4	5
i.	Cost of using the facility					
ii.	The size of the facility					
iii.	Suitability of the facility					
iv.	Suitability of the location of the facility					
v.	Security in and around the facility					
vi.	Accessibility of the facility					

21. The table below shows some ways by which stakeholders' level of satisfaction of PPP projects can be enhanced; Please indicate your assessment of the effectiveness of these identified ways.

Where:

[ 1 ] Not effective

[ 2 ] Fairly effective

[ 3 ] Effective

[ 4 ] Very effective

(Please tick as appropriate)

S/No	Ways of enhancing stakeholders' level of satisfaction	Rating			
		1	2	3	4
i.	Identify all stakeholders of the project especially staff & students (the end users of the facilities).				
ii.	Involve all identified stakeholders in decision making by finding out from the end users what their immediate needs are.				
iii.	Liaising with the end users will improve understanding and trust.				
iv.	Liaising with stakeholders will create a forum that encourages opposing stakeholders to find areas of consensus.				
v.	Stakeholders' engagement will have positive effect on the outcome of the PPP procurement process.				
vi.	Stakeholders' engagement will result in high level of satisfaction of PPP projects.				
vii.	Stakeholders' opposition will significantly reduce if they are involved in project procurement process.				
viii.	Stakeholders' engagement will lead to better performance and more innovations.				

22. As a stakeholder, please suggest ways by which your level of satisfaction on future PPP projects that your institution might want to embark on can be improved upon (please feel free to suggest as many points as you wish).

- .....
- .....
- .....

*Thank you for your time and assistance.*

## Appendix 6.5: Case Study Questionnaires: Staff



### SELF – COMPLETION QUESTIONNAIRE FOR STAFF

26th June 2017

Dear Sir/Ma,

#### **Higher Education Infrastructure Development through Public-Private Partnerships**

I am a research student at Herriot-Watt University, Edinburgh, United Kingdom under the supervision of Dr Graeme Bowles and Dr Adekunle Oyegoke. My research is in the area of Private Sector Participation in the delivery of Higher Education Infrastructure (HEI). The overall thrust of the study is to use collaborative governance as the underpinning theory in developing an effective Model for HEI Public Private Partnership (PPP) projects.

During the first stage of the research, a review of the existing process of PPP in the HEI sector was carried out with the view to improve upon it, and findings indicate governance process as the fundamental challenge.

Consequently, the aim of this stage of the research is to assess the impact of collaborative governance on PPP projects in the HEI sector; *this will be achieved by determining if collaborative governance is related to:*

- *the performance of partners*
- *the quality of the relationship of stakeholders*
- *the outcome of PPP procurement process*

I am by this letter requesting that you kindly spare between 15 to 20 minutes of your time to complete the attached questionnaire which is aimed at understanding your experiences and views as a stakeholder.

Be assured that the data collected will be kept confidential and used purely for academic purposes.

Thank you.

A handwritten signature in black ink, appearing to read 'Adebunmi'.

Mrs Adebunmi Ateloye  
PhD Research Student

## Appendix 8.1: A PPP Model for Higher Education Infrastructure

This study revealed that PPP projects are usually initiated by private sector companies in a form of unsolicited proposals, (evidence is presented in chapter 5 & 6 of the thesis), this does not allow for submission of innovative ideas from various contractors, and most times lead to poor partnership and abandoned projects. Consequently, the institutions should avoid unsolicited proposals for PPP projects until a certain maturity level is attained. Also, to avoid projects being abandoned, the suitability of PPP for the project should be properly analysed.

It is also evident in the case studies conducted that most students and staff of the institutions preferred to be involved in the process of PPP infrastructure Procurement, (case study analysis is presented in chapter 6 of the thesis). Therefore, it is proposed that relevant stakeholders are identified and engaged in the process.

### PRELIMINARY PHASE

In order to avoid unrealistic proposals as evident in the study, and presented in chapter 6 of the thesis, projects issues such as the; Viability, Benefits, Value for Money, and the Risks associated with the project should be fully analysed.

### PLANNING PHASE

The study also reveals that PPPs in the Higher Education Infrastructure (HEI) sector, lack proper governance structure, coupled with the problem of one man business. It is therefore suggested that a Special Purpose Vehicle (project company) be set up from the inception of the partnership, this will provide a good governance structure, mitigate the problem of inaccessibility of project funds, and also minimise the level of bureaucracy, political interferences and the likelihood of the project being abandoned will be minimised. The evidence of these findings are presented in chapter 3, 5 & 6 of the thesis.

This study finds that collaborative governance benefits PPP stakeholders in many ways (as discussed in chapter 7 of the thesis); such as mutual gains, improve trust on other stakeholders, the efficiency and effectiveness of coordination of the project is enhanced, knowledge and information are acquired, and the legitimacy of project decisions are improved upon.

Uncertainty of demand was identified as one of the reasons why the private does not show interest in social infrastructure PPP procurement, hence the need to determine who takes on the demand risk and allocate same to the party that is best able to manage it.

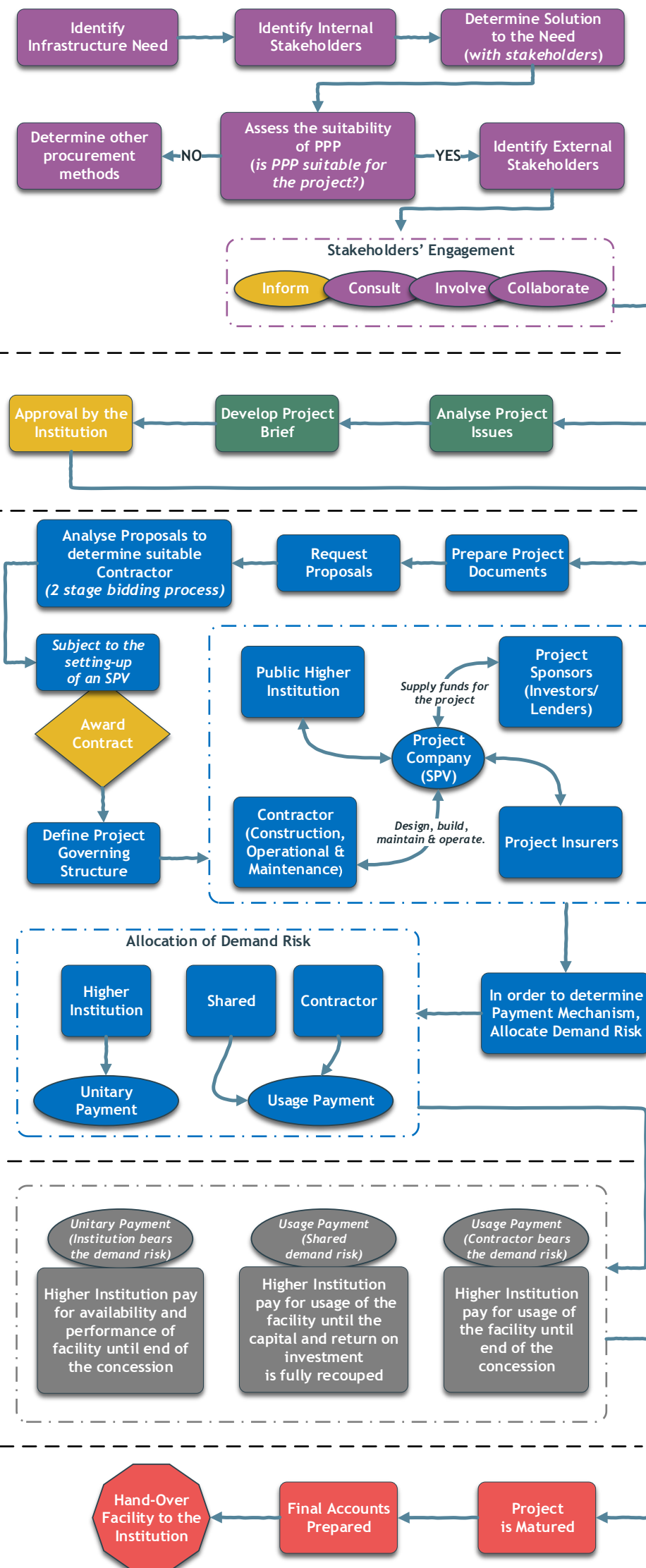
### PROCUREMENT PHASE

Lack of proper payment structure is identified as one of the problems associated with procuring social infrastructures through PPP in the Higher Education Infrastructure consequently, the study suggest that demand risk be properly allocated and payment method determined as explained in chapter nine of the thesis.

### OPERATIONAL PHASE

The description of the entire Model is presented in chapter 9 of the thesis.

### PROJECT MATURITY PHASE



#### Key

Existing Stages in the current process Preliminary Phase Planning Phase Procurement Phase Operational Phase Project Maturity Phase



## Appendix 8.2: Introduction Letter for Model Evaluation

United Kingdom | Dubai | Malaysia



### A PUBLIC PRIVATE PARTNERSHIP MODEL FOR HIGHER EDUCATION INFRASTRUCTURE

Dear Arc. Matthew Onoba,

I am currently conducting a research at Heriot-Watt University Edinburgh, United Kingdom, under the supervision of Dr Graeme Bowles and Dr Adekunle Oyegoke. The research is aimed at developing a Public Private Partnership Model suitable for the procurement of social infrastructure in Nigeria Higher Education infrastructure sector.

The proposed Model has now been developed, and as part of the research, the applicability of the developed Model is expected to be evaluated by experts and stakeholders. Consequently,

I am by this letter requesting that you kindly spare about 20 minutes of your time to share from your wealth of experience and knowledge, by assessing the developed Model. Be assured that your data will be kept confidential and used purely for academic purposes.

Please find attached; the summary of the study, the Model to be evaluated and the questionnaire to be completed.

Thanking you, in anticipation of your contribution to this research.

Yours Sincerely,

A handwritten signature in black ink, appearing to read 'Adebisola B. Ateloye'.

**Adebisola B. Ateloye**  
PhD Research Student

A handwritten signature in black ink, appearing to read 'Graeme Bowles'.

**Dr Graeme Bowles**  
First Supervisor

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## Appendix 8.3: Consent Letter for Model Evaluation

United Kingdom | Dubai | Malaysia



### A PUBLIC PRIVATE PARTNERSHIP MODEL FOR HIGHER EDUCATION INFRASTRUCTURE

#### Letter of Consent to Participate in Model Evaluation

I hereby give my consent to participate in the Evaluation of a Model developed by Adebisola B. Ateloye, a doctoral research student of the School of Energy, Geoscience, Infrastructure and Society, Heriot Watt University, Edinburgh.

I acknowledge that I have received the Model and evaluation instructions.

As an expert in the field of infrastructure development in Nigeria, I may be asked to provide useful and additional information not contained in the questionnaire. I may however decline to do so and choose to withdraw my consent prior to completing the questionnaire if I deem so.

As a participant in the evaluation process, I am aware that:

- All information and data supplied will be treated confidentially
- My identity will be protected and anonymity maintained
- My participation is voluntary and may be withdrawn at any time

Participant

Signed.....Date.....

Researcher

Signature.....Date.....

For more enquiries, please contact:

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## **Appendix 8.4: Research Summary for Model Evaluation**

### ***Summary of Research Findings and Proposed Solutions***

*The study revealed that PPP in the HE infrastructure sector, are usually initiated by private sector companies in a form of unsolicited proposals, which does not allow for submission of innovative ideas from various contractors, and most times lead to poor partnership and abandoned projects. Consequently, this research suggests that Nigeria public higher institutions should avoid unsolicited proposals for PPP projects until a certain maturity level is attained. Also, to avoid projects being abandoned, the suitability of PPP for the project should be properly analysed.*

*It is also evident in the case studies conducted that most students and staff of the higher institutions preferred to be involved in PPP infrastructure procurement process, therefore, it is proposed that relevant stakeholders are identified and engaged in the process. Collaboration with PPP stakeholders is of benefit in many ways; such as mutual gains, improved trust on other stakeholders, the efficiency and effectiveness of coordination of the project is enhanced, knowledge and information are acquired, and the legitimacy of project decisions are improved upon. Furthermore, to avoid unrealistic proposals as evident in the study, projects issues such as the; Viability, Benefits, Value for Money, and the Risks associated with the project should be fully analysed before going into any partnership.*

*The study also reveals that PPPs in the HE infrastructure sector, usually lack proper governance structure, coupled with the problem of one-man business. It is therefore suggested that a Special Purpose Vehicle (project company) be set up from the inception of the partnership, this will provide a good governance structure, mitigate the problem of inaccessibility of project funds, and minimise the level of bureaucracy, political interferences and the likelihood of the project being abandoned will be minimised.*

*Uncertainty of demand and lack of proper payment structure are some of the reasons why the private does not show interest in social infrastructure PPP procurement, hence the need to determine who takes on the demand risk and allocate same to the party that is best able to manage it, the study further suggests that demand risk be properly allocated, and payment method determined at the inception of the partnership.*

## Appendix 8.5: Questionnaire for Model Evaluation



### A PUBLIC-PRIVATE PARTNERSHIP MODEL FOR HIGHER EDUCATION INFRASTRUCTURE

#### MODEL EVALUATION

##### SECTION A: Personal Information

1. Name (*optional*).....
2. Email Address (*optional*).....
3. Name of Organisation (*optional*).....
4. Type of Organisation: (*please tick as appropriate*)
  - ☐ Contracting
  - ☐ Consulting
  - ☐ Banking
  - ☐ Academic
  - ☐ Concessionaire
  - ☐ Others (*please specify*) .....
5. Highest Academic Qualification: (*please tick as appropriate*)
  - ☐ HND
  - ☐ B.Tech/BSc
  - ☐ M.Tech/ MSc /MBA
  - ☐ PhD
6. Profession: (*please tick as appropriate*)
  - ☐ Architect
  - ☐ Civil Engineer
  - ☐ Builder
  - ☐ Quantity Surveyor
  - ☐ Banker
  - ☐ Others (*please specify*) .....

7. Number of years of experience: *(please tick as appropriate)*
- ☐ 1-5
- ☐ 6-10
- ☐ 11-20
- ☐ 21-30
- ☐ 30 and above
8. Designation in your Organisation: .....
9. Have you been involved in any Public Private Partnership project? *(please tick as appropriate)*
- ☐ Yes
- ☐ No

## SECTION B: Model Evaluation

Please find attached 'A Public-Private Partnership Model for Higher Education Infrastructure' The Model is developed specifically for the procurement of social infrastructures in Nigeria public higher institutions.

1. Please indicate your overall assessment of the attached Model using the following scale where: *1 = Poor    2 = Below Average    3 = Average    4 = Above Average    5 = Excellent*

QUALITIES	1	2	3	4	5
<i>The logical structure of the Model</i>					
<i>Clarity of the Model</i>					
<i>Comprehensiveness of the Model</i>					
<i>The practicability of the Model</i>					
<i>The efficiency of the Model</i>					
<i>Applicability of the Model to Higher Education Infrastructure Development</i>					

2. Please state any limitations or weaknesses identified in the Model

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3. Please identify possible areas of strengths of the Model.....

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4. Please give any general comments that you may have on the Model

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5. Please provide any suggestions that may further improve the quality of the Model.

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6. Please state other areas where the Model could be of use.

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*Thank you for your time, and for participating in the evaluation process, your  
contribution to this research is appreciated.*